Assimilation in Classical Arabic
A phonological study

By
Abdulrahman Ibrahim Alfozan

A thesis submitted to the Faculty of Arts of the
University of Glasgow in fulfilment of the requirements for the degree of Doctor of Philosophy
1989
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# ARABIC SOUNDS

## 1. CONSONANTS

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<th>Transliteration</th>
<th>Phonetic Transcription</th>
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<td>.</td>
<td>d</td>
<td>d</td>
<td>voiceless glottal stop</td>
</tr>
<tr>
<td>t</td>
<td>h</td>
<td>h</td>
<td>voiceless glottal fricative</td>
</tr>
<tr>
<td>h</td>
<td>h</td>
<td>h</td>
<td>voiceless pharyngeal fricative</td>
</tr>
<tr>
<td>c</td>
<td>c</td>
<td>c</td>
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</tr>
<tr>
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<td>x</td>
<td>x</td>
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<tr>
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<td>y</td>
<td>y</td>
<td>voiced uvular fricative</td>
</tr>
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<td>k</td>
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<td>y</td>
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<td>ʾṣ</td>
<td>ʾṣ</td>
<td>voiceless alveo-palatal fricative</td>
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<tr>
<td>d</td>
<td>d</td>
<td>d</td>
<td>voiced alveolar stop</td>
</tr>
<tr>
<td>t</td>
<td>t</td>
<td>t</td>
<td>voiceless alveolar stop</td>
</tr>
<tr>
<td>f</td>
<td>ṭ</td>
<td>ṭ</td>
<td>voiced emphatic alveolar stop</td>
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<tr>
<td>l</td>
<td>l</td>
<td>l</td>
<td>voiced alveolar lateral</td>
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<tr>
<td>r</td>
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<td>r</td>
<td>voiced alveolar trill</td>
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<tr>
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<td>ʾd</td>
<td>voiced emphatic alveolar fricative</td>
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<tr>
<td>n</td>
<td>n</td>
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</tr>
<tr>
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<td>ʾs</td>
<td>ʾs</td>
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<td>z</td>
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<td>f</td>
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<td>i</td>
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<table>
<thead>
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<th>Alif al-imālah ath-thaqīlah</th>
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<tr>
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<thead>
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<thead>
<tr>
<th>Kasrah approx. to ḍammah</th>
<th>ḍammah approx. to kasrah</th>
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<tbody>
<tr>
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<td>÷</td>
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Acknowledgement

My gratitude is due totally to my Lord for the successful completion of this work.

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Abstract

This thesis deals with the phenomenon of assimilation, a natural phonological process, in classical Arabic. It consists of three chapters:

The first chapter of the thesis deals with the Arabic sounds in isolation: their points of articulation and manners of articulation with reference to the views of both Arab linguists and scholars of Tajwīd. Secondary sounds, both accepted and rejected, are mentioned too. A brief discussion is devoted to the distinctive features, with particular reference to those that seem to have been described inaccurately by some early or modern linguists.

The second chapter deals with the definition and different types of assimilation. The term *idghām*, which has been rendered as "assimilation" is, in fact, narrower in application than the English term; other topics and sub-topics in Arabic grammar that subsume aspects of assimilation are also discussed. The direction of assimilation, whether the influence comes regressively or progressively or in both directions is dealt with, with detailed examples, mostly from the Qur'ān. A brief discussion of both complete and partial assimilation is given followed by a discussion of distant assimilation, with particular attention being given to the so called "al-*Idghām al-Kabīr". The last sub-chapter here deals with the history of sound changes in Arabic.

The third chapter is the main part of the thesis. It deals with Arabic sounds in combination. Consonants are discussed first,
from two points of view: the occurrence or non-occurrence of certain consonants with each other within the same roots, and the influence of certain sounds upon others when these occur adjacently.

Vowels are then discussed in detail, particularly with respect to the best-known phenomena associated with them: imālah, vowel harmony, lengthening and shortening, and tafkhīm. Under imālah, we consider whether the alif al-imālah is an independent phoneme, a dialectal variant, or an allophone of the actual / ā /. When this alif is likely to occur and when it is likely to be inhibited is also seen. In the section on vowel harmony the question as to whether there is systematic harmony is confronted. In the section on lengthening and shortening, the circumstances in which these two phenomena occur are discussed, with particular attention to the over-lengthened vowels. Finally, alif at-tafkhīm is investigated, to see whether this vowel / 5 / is an independent phoneme, a dialectal variant, or an allophone of the actual / ā /.
Introduction

Arabic phonetics and phonology have been studied extensively by both early and modern linguists. The phenomenon of "assimilation" is included in their general work; however, deeper study of this phenomenon is needed. In this work, we attempt to fill this gap to some extent; however, a comprehensive further investigation is still needed, especially where the behavior of certain sounds is not satisfactorily explained. Largely because of the very great number of contradictory examples reported.

The study of phonetics among the Arabs dates back, together with their other linguistic studies, such as grammar, lexicography, and rhetoric, to the first century of the Hijrah (A.H.). It took as its base the Qur'ān, and the principal reason for its development was the desire to preserve the text of the Qur'ān from corruption. It manifested itself at that time chiefly in the science of tajwīd (correct recitation of the Qur'ān).

al-Khalil was the first of those whom we know to have discussed the sounds of Arabic, although he did not devote any separate section of this work to the topic. Ṣibawayh has one chapter on sounds, al-ṣidghām, in which he looks into the matter in more depth than his master, al-Khalil, many of whose ideas he also presents.
Ibn Jinnī (-392 A.H.) was the first to devote a whole work to phonetics, *Sirr Šinācat al-Iqrāb*¹. It remains one of the best-known Arabic works on the subject.

A large proportion of the examples employed are taken from the *Qurʾān*. This is because linguistic, and particularly phonetic, phenomena are better documented in connection with *Qurʾān* recitation than with any other form of utterance.

Before we start the discussion of the phenomenon of the assimilation in classical Arabic, it will be helpful to consider the pronunciation of Arabic sounds in isolation.²

From this we shall be better able to understand the phenomenon of assimilation in Arabic and why it occurs with some sounds but not with others.³

---

1. Ibn Jinnī says in this book (1 / 59): "I know no one of our companions (he probably meant the linguists belonging to the Baṣra school) who did in this field as I do and gave it full discussion as I do". He is right in this claim, because even after him nobody gave phonetics as much attention as he did.

2. The different dialects spoken in the Arab world nowadays are outside the scope of this thesis, since we are dealing with classical Arabic.

3. Sibawayh, the father of Arabic grammar, described Arabic sounds before he dealt with *idghām* incorporation or gemination which is considered as part of assimilation. The other kinds of assimilation are found listed under different headings in Arabic grammar such as *ibdāl* (substitution). After he has described Arabic sounds in terms of their point of articulation, Sibawayh says: "I have described the (sounds associated with) the letters of the alphabet in this way simply in order that you may know in which *idghām* is appropriate and permissible and in which it is inappropriate and impermissible." (*al- Kitāb*, 2 / 406-407) Most of the grammarians followed him in this way.
Chapter One
Chapter one

Arabic sounds

Arabic has twenty-eight cardinal consonants and six cardinal vowels three of which are short and three are long. The total number of Arabic sounds is thirty-four.\(^1\)

There are only thirty-two signs in the Arabic writing system because /w/ and /y/ have the same symbol as /ū/ and /i/ respectively. Moreover, the short vowels, namely /a, i, and u/ were not written in Arabic orthography up to the second century A.H. (after the prophet Muḥammad's migration to the city of Madīnah). indeed, they are still absent in most Arabic hand-written and printed material.

Moreover, the Arabs do not use letters to indicate short vowels except in one word, namely /jull/ ("they", the third person feminine plural pronoun), where they use /ū/ instead of /u/.\(^2\)

On the other hand, the long vowel /ā/ was not shown in the Arabic script for a long time. It is still not written in many cases in the Qurʾānic script, nor in some other Arabic words such as /hādā / (this) /Allāh / (God) and /ar-Raḥmān / (the merciful).

---

\(^1\) In Arabic, there are six accepted non-cardinal sounds, and eight rejected non-cardinal sounds as have been described by Arabic grammarians and phonetitians such as Sibawayh, Ibn Jinni, and others. They are either stylistic, dialectal, contextual or free variants. There will be a detailed discussion of these in the ensuing chapter.

\(^2\) J. Cantineau (1966), 173.
Furthermore, the Arabs sometimes employ short vowels instead of long ones, as in the use of / i / for / ï / e. g. / tuṣṭi / (you give), / al-ghawani / (alrawâni) (the beautiful girls), / yā cibādi / (Oh my servants). They are instead of / tuṣṭi /, / al-ghawâni / and / yā cibâdi / respectively; / u / for / ū / e. g.: / an-nujum / (stars), / al-ḥulūq / (throats) instead of / an-nujūm /, and / al-ḥulūq/ respectively.³

This fact about the way of writing short vowels does not affect our discussion since we are dealing with the sounds and pronunciation and not with orthography.

We shall discuss consonants, vowels, and semi-vowels separately; however, neither the early Arabic linguists nor the scholars of tajwīd always separate the three types of sounds in their discussion.

The Arabs have described Arabic sounds regarding both makhrąj (point) and shifāh (manner) of articulation in a way that is similar to that of the modern linguists.

1.1 Consonants:
1.1.1. Points of articulation:

The ordering of Arabic sounds from the throat forwards to the lips made by various Arabic scholars:

al-Khalil Ibn Aḥmad (- 175 A.H.):

\[ c, ṣ, h, x, y - q, k - j, ū, q, s, z - ṭ, d, t - ḥ, ẓ, o - r, l, n - f, b, m - w / ū, a, y / i, õ. \]

Sibawayh (-180 A.H.):
1. ā, h - c, ḥ - x, x - q - k - j, ẓ, y - ẓ - l - n - r - t, d, t - z, s, ṣ - ḍ, ṣ, ẓ - f - b, m, w / ū. 6

al-Mubarrid (-285 A.H.):
2. h, ā - ḥ, ẓ - x, x - q - k - ẓ - j - d - l - n - t, d, t - s, ẓ, z - ẓ, ẓ - ḍ, ṣ, ẓ, ẓ - f - w, b, m. 7

Abū cAlī al-Qālid (-356 A.H.):
 ā, ḥ, ẓ, x, ẓ - q, ḥ - ḍ, j, ẓ - l, r, n - t, d, t - s, z, s - ẓ, ẓ - f, ṣ, ẓ - f - b, m. 8

Ibn Jinnī (-392 A.H.):
ā, h - c, ḥ - x, x - q - k - j, ẓ, y - ẓ - l - n - r - t, d, t - s - z - s - ẓ, ẓ - f - b, m, w. 9

Ibn Sinān al-Khafāji (-466 A.H.)
ā, h - c, ḥ - x, x - q - k - j, ẓ, y - ẓ - l - n - r - t, d, t - s - z, s - ẓ, ẓ - f - b, m. 10

az-Zamakhshāri (-538 A.H.)
ā, h, ā - c, ḥ - x, x - q - k - j, ẓ, y - ẓ - l - n - r - t, d, t - s, z, s -

4. He lists the sound /ʿ/ at the end with the vowels, although he believes that it is articulated in the deepest part of the pharynx, (al-ʿAyn, 1 / 52). However, he also says that / ʿ/, after which he named his lexicographical work, is the deepest sound.

5. al-ʿAyn, 1 / 57-58.

6. al-Kitāb, 2 / 405.


8. al- Bāris, 16.


\[\varepsilon, \hat{\varepsilon}, \emptyset - f - b, m, w. 11\]

Ibn Ya'qish (- 643 A.H.)

\[\emptyset, h, \hat{a} - c, \hat{h} - \hat{x}, x - q, k - j, \hat{s}, y - \hat{q} - l - n - r - \hat{t}, d, t - \hat{s}, z \hat{\varepsilon}, \]

\[\hat{\varepsilon}, \emptyset - f - b, m, w. 12\]

Ibn al-Jazari (- 833 A.H.)

\[\hat{a}, \hat{u}, \hat{t} - \emptyset, h - c, \hat{h} - \hat{x}, x - q - k - j, \hat{s}, y - \hat{q} - l - n - r - \hat{t}, d, t - \hat{s}, \]

\[s, z \hat{\varepsilon}, \hat{\varepsilon}, \emptyset - f - w, b, m - . 13\]

1. 1. 2. Manner of articulation:

1. Sibawayh : 14

Stops : \( \emptyset, q, k, j, \hat{t}, t, d, b. \)

Fricatives : \( h, \hat{h}, \hat{x}, x, \hat{s}, \hat{q}, \hat{z}, s, \hat{\varepsilon}, \emptyset, \hat{\varepsilon}, f. \)

Resonants 15 : \( c (l, n, r, w, y, m). 16\)

Voiced : \( \emptyset, \hat{a}, c, \hat{\varepsilon}, q, j, y, \hat{q}, l, n, r, \hat{t}, d, z, \hat{\varepsilon}, \emptyset, b, m, l. \)

Voiceless : \( h, \hat{h}, x, k, \hat{s}, s, t, \hat{s}, \emptyset, f. \)

2. Ibn Jinni 17

Stops : \( \emptyset, q, k, j, \hat{t}, d, t, b. \)

---

11 Sharh al-mufaṣṣal, 10 / 128.
12 Sharh al-mufaṣṣal, 10 / 123-125.
13 an-Nashr fi al-qiráát al-ashr, 1 / 199-200.
14 * Sounds that are grouped between dashes (—) have the same place of articulation but they are not necessarily in order.
15 al-Kitāb, 2 / 405-406.
16 Resonants are classified by the Arabs as between stops Shadidah and fricatives Rikhwah.
17 Sirr șina'at al-irāb, 1 / 60-61.
Fricatives: \( h, \delta, \chi, x, \check{s}, \check{\imath}, q, j, y, \check{\imath}, d, z, \check{\alpha}, \check{\eta}, \theta, \phi, \)

Resonants: \( \check{\alpha}, \check{\gamma}, y, l, n, r, m, w, \)

Voiced: \( \check{\delta}, \check{\alpha}, \check{\gamma}, y, q, j, y, \check{\imath}, l, n, r, \check{\imath}, d, z, \check{\alpha}, \check{\eta}, b, m, w, \)

Voiceless: \( h, \check{h}, x, k, \check{s}, s, t, s, \epsilon, f, \)

3. Ibn Sinān al-Khaṭābī\(^{18}\)

Stops: \( \check{\delta}, q, k, j, \check{\imath}, d, t, b, \)

Fricatives: \( h, \check{h}, \check{\gamma}, x, \check{s}, \check{\imath}, s, z, \check{\alpha}, \check{\eta}, \theta, \phi, \)

Resonants: \( \check{\gamma}, y, l, n, r, m, w, \)

Voiced: \( \check{\gamma}, \check{\alpha}, \check{\gamma}, y, q, j, y, \check{\imath}, l, n, r, \check{\imath}, d, z, \check{\alpha}, \check{\eta}, b, m, w, \)

Voiceless: \( h, \check{h}, x, k, \check{s}, s, \epsilon, f, \)

4. az-Zamakhshārī\(^{19}\)

Stops: \( \check{\delta}, q, k, j, \check{\imath}, d, t, b, \)

Fricatives: \( h, \check{h}, \check{\gamma}, x, \check{s}, \check{\imath}, s, z, \check{\alpha}, \check{\eta}, \theta, \phi, \)

Resonants: \( \check{\gamma}, y, l, n, r, m, w, \)

Voiced: \( \check{\gamma}, \check{\alpha}, \check{\gamma}, y, q, j, y, \check{\imath}, l, n, r, \check{\imath}, d, z, \check{\alpha}, \check{\eta}, b, m, w, \)

Voiceless: \( h, \check{h}, x, k, \check{s}, s, \epsilon, f, \)

5. Ibn Yaṣīf\(^{20}\)

Stops: \( \check{\delta}, q, k, j, \check{\imath}, d, t, b, \)

Fricatives: \( h, \check{h}, \check{\gamma}, x, \check{s}, \check{\imath}, s, z, \check{\alpha}, \check{\eta}, \theta, \phi, \)

Resonants: \( \check{\gamma}, y, l, n, r, m, w, \)

Voiced: \( \check{\gamma}, \check{\alpha}, \check{\gamma}, y, q, j, y, \check{\imath}, l, n, r, \check{\imath}, d, z, \check{\alpha}, \check{\eta}, b, m, w, \)

Voiceless: \( h, \check{h}, x, k, \check{s}, s, \epsilon, f, \)

6. Ibn al-Jazarī\(^{21}\)

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\(^{18}\) *Sīr al-faṣāḥah*, 29-30.

\(^{19}\) *Sharh al-muṣṣāl*, 10 / 128.

\(^{20}\) *Sharh al-muṣṣāl*, 10 / 129.
Stops : ą, q, k, t, d, j, b.
Fricatives : h, Ɔ, x, s, z, ș, ș, ă, ă, ă, ă, ă, ă, ă.
Resonants : c, l, r, n, m, (w, y).
Voiced : ą, c, x, q, j, y, ș, I, n, r, t, d, z, ș, ș, b, m, w.
Voiceless : h, Ɔ, x, k, t, ș, ș, s, ă, ă, ă, ă, ă, ă.

As regards the preceding matrices, it is to be noticed that:

a. The linguists whose schemes are presented here cover a substantial period of time:

2. Third century A.H. : al-Mubarrid
5. Sixth century A.H. : az-Zamakhshari

b. They specialized in different aspects of the subjects:

1. Lexicography : al-Khalîl and al-Qâfî
2. Grammar : Sibawayh and al-Mubarrid
3. Phonetics : Ibn Jinnî
5. Qirā'āt : Ibn al-Jazari
6. Tafsîr : az-Zamakhshari

21 an-Nashr, 1 / 202-203.
22 Sometimes it is difficult to limit the ancient scholars' fields of interest. It is normal to find somebody who could be described as either a grammarian, phonetician or lexicographer, such as al-Khalîl. For that reason, we shall focus only on the scholar’s major field of interest.
There is shown unanimous agreement as to the classification of the sounds although not as to their order:

a. Stops : q, q, k, j, t, d, and b.

b. Fricatives : h, §, x, s, z, d, g, θ, and f.

c. Resonants: nasals (n, m), liquids (l, r), and semi-vowels (y, w).

d. Voiced : a, c, y, j, y, q, l, r, n, t, d, z, θ, θ, b, m, a, w.

e. Voiceless : h, §, x, k, t, s, s, θ, and f.

In describing sounds according to their point of articulation, they all proceed from those pronounced furthest back in the throat to those pronounced nearest to the lips. There are some differences between them as to which sounds are articulated precisely where, especially the back sounds. Thus they just almost entirely repeat one another's ideas, except in some clear cases, such as the consideration of / c / as neither stop nor fricative. In the case of contemporaries giving different descriptions of the same sound, we are obliged to assume that these, if accurate, must apply to different regions.

23 All of them consider / c / as a resonant and not as a fricative. This appears strange; they seem simply to be repeating one another.

24 Almost all the mentioned scholars list the long vowel / a / as a resonant (neither stop nor fricative), which is correct, but it should be discussed with the other long vowels / ū and ī / separately. The only scholar who does mention all the three vowels here is Ibn al-Jazari.

25 They do not mention the other two vowels, namely / ū and ī /, as voiced because they did not have separate symbols for them. As mentioned before, they class them together with the semi-vowels / w and y /, and so they find it enough to indicate them together as voiced.
**chart of Arabic consonants**

<table>
<thead>
<tr>
<th>place of articulation</th>
<th>bilabial</th>
<th>labiodental</th>
<th>n.e. interdental</th>
<th>n.e. em</th>
<th>alveolar</th>
<th>alveopalatal</th>
<th>palatal</th>
<th>velar</th>
<th>uvular</th>
<th>pharyngeal</th>
<th>glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>manner of articulation</td>
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<tr>
<td>stops</td>
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<td>b د</td>
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<tr>
<td>fricatives</td>
<td>vl</td>
<td>f ث</td>
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<td>vd</td>
<td>d د ط س ش خ ح ١</td>
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<td>nasals</td>
<td>m م</td>
<td>ن ل ر ي</td>
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<td>sonorants:</td>
<td>lateral</td>
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</tbody>
</table>

where: n.e. = non-emphatic  
em. = emphatic

Generally speaking, modern studies in Arabic phonetics show that Ibn Jinni's description of Arabic sounds is almost identical to that of Sibawayh's except that the former states that /q/ is articulated farther back than /k/ and that /y/ is articulated further back than /q/. Clearly both had a competent understanding of articulatory phonetics and were able to give an adequate description of Arabic consonants.
The most probable reason for the comparatively early date of such experts among Arabic grammarians is that linguistic studies originated in attempts to preserve an unaltered text and an authentic oral presentation of the Qur'ān.

Now we come to the question of the method they used to discover where a sound is articulated. The answer is to be found in Ibn al-Jazari's statement: "The method of determining the point of articulation of a sound is to produce it after hamzat l-waṣl with sukūn or tashdīd. This is the clearest way in which the characteristics of a sound may be appreciated".

However, the use of any sound before the one in question is rejected by modern Arabic linguists, on the grounds that it will inevitably modify the point of articulation.

1.2. Non-cardinal sounds:

In addition to the thirty-four Arabic cardinal sounds, Arabic phoneticians list six more accepted non-cardinal sounds, and eight rejected non-cardinal sounds. They are furūc

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26 The Arabs studied linguistics for more than a thousand years before Westerners did. G. Bergsträsser says: "No nations preceded Westerners in this field (Linguistics) except two nations, namely the Indians and the Arabs." (at-Tatawwur an-nahwî lill-lughâh al-arabîyyah, 5).

27 Firth says "Phonetics grew to serve two holy languages: they are Sanscrit and Arabic." A. Umar, al-Baḥth al-lughawi ʿind al-arab, 79.

28 an-Nashr, 1 / 199. In fact, Abū Shāmah gives a similar statement concerning this method before Ibn al-Jazari, but without mentioning tashdīd. (see Ibrāz al- maʿānī min ḥirz al-ʿamānī, 745).

(branches) of the original sounds. They may be considered as dialectal variations or allophones of other sounds as an outcome of assimilation in certain phonetic environments.

The accepted non-cardinal sounds are accepted because they are adopted in the reading of the holy Qur'an and in elevated speech.

The rejected non-cardinal sounds were used by some foreigners who accepted Islam and learned Arabic. They were also used by some Arabs who lived with these foreigners and spoke their languages.

The non-cardinal sounds, both accepted and rejected, have no special symbols in the Arabic writing system. This fact leads Arabs not to consider their point of articulation or, in some cases their manner of articulation. In fact, the only one the point of articulation of which is described is: an-nūn al-khaffah (the light /n/), as being the nasal cavity.

30 See al-Kitāb, 2 / 404, Sirr ṣinā‘at al- iṣrāb, 1 / 46, an-Nashr, 1 / 201-202, and Sharḥ al-muṣafṣal, 10 / 125-128...etc.

31 We shall see in our examples of assimilation how the Arabs dealt with these non-approved sounds practically, whether they accepted them all or just some of them.

32 Sharḥ al-muṣafṣal, 10 / 128.

33 This is true in the early stages; however, later, symbols indicating, the sound of imālah, are found in certain manuscripts and printed books. These symbols are: kasrah before below the alif; a small mu‘ayyān (rhombus) written sometimes in red color, below the alif; the word mil, in red, written above the alif (for more details, see A. Shalabi, Fi ad-dirāsāt al-qur‘āniyyah wal-lughawīyyah: al-imālah fi al-qirā‘āt wal-lahajāt al-‘Arabiyyah, 369- 382). Nowadays, the muṣafṣals used in North Africa have a dot below the alif in places where imālah is read by Warsh 'an Nafī‘.
1.2.1. The accepted derived sounds:

The accepted derived sounds are six, four consonants and two vowels, as listed below:

1.2.1.1. Consonants:

1. an-nūn al-khāfīfah (the light /n/), an-nūn al-khāfiyyah (the unclear /n/), or an-nūn as-sākinah (vowelless /n/) pronounced in certain phonetic environments, i.e., when followed by the fifteen sounds which are called the letters of *ikhfā* (hiding) : ṣ, ẓ, e, k, j, ẓ, q, s, d, t, z, f, t, ð, and ɣ. These sounds may be in the same word as the nūn or may begin the following word, if the nūn is the ultimate sound of the previous word. Here are some examples:

- anṯ (nose),
- in kuntu (If you (masc. plu.) are).

This nūn is recommended in the reading of the Qurʾān. However, Ibn al-Jazārī does not mention it as one of the secondary sounds of Arabic.

2. the *hamzah bayna bayna* as Sibawayh calls it, or *al-hamzah al-khāfīfah* (the light *hamzah*) as Ibn Jinnī calls it, or *al-musahhalah* (the easy *hamza*) as Ibn al-Jazārī

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35 Ibn al-Jazārī (an-*Nashr* 1 / 202) adds the emphatic /l/.
36 *Sharḥ al-muṣaffal*, 1 / 126.
37 There will be further discussion of this point in the following chapter on assimilation.
38 *al-Kitāb*, 2 / 163.
calls it, or half-way articulated \[^{41}\] as K. Semaan calls it. Here is an example: the glottal stop is pronounced as halfway between \( \mu \hat{h}aqqaqah \) (the true glottal stop) and the long vowel corresponding to the short vowel following the \( \text{hamzah} \) \(/ \text{o} / \). If the \( \text{hamzah} \) is followed by \(/ a /\), it will be pronounced as between \(/ \text{o} / \) and \(/ \text{ā} /\). Similarly, if it is followed by \(/ i /\) or \(/ u /\), it will be pronounced between \(/ \text{o} /\) and \(/ \text{ā} /\) or \(/ \text{ū} /\) respectively \[^{42}\]. Hence it can occur in intervocalic positions \((v \text{ } v)\) or between vowel and consonant but it cannot occur in an initial position \[^{43}\]. Examples of this \( \text{hamzah} \) are:

\begin{itemize}
  \item \texttt{sa'ala} (he asked),
  \item \texttt{su'ila} (he was asked),
  \item \texttt{mustahzi'ūn} (Jesting).
\end{itemize}

3. \textit{shīn} \(/ \text{s} /\) approximated to \textit{jīm} \(/ \text{j} /\) \[^{44}\].

The Arabic \(/ \text{s} /\) is a voiceless alveo-palatal fricative while \(/ \text{j} /\) is a voiced palatal stop. D. Bolinger describes the English \(/ \text{j} /\) as a voiced stop \[^{45}\] just as it is in Arabic.

\[^{39}\] Sirr \textit{sinā'at al-} \textit{ijrāb}, 1 \(/ 46\).
\[^{40}\] an-\textit{Nashr}, 1 \(/ 201\).
\[^{42}\] \textit{al-Kitāb}, 2 \(/ 163-164\).
\[^{43}\] The other kinds of \textit{hamzah} will be seen later.
\[^{44}\] Makki Ibn Abī Ṭālib does not mention this sound among the accepted sounds in \textit{ar-Ri'āyah li-tajwīd al-qirā'ah wa taqāqīq lafā' at-tīlāwah}, 107-112.
English / 3 / as in pleasure is formed like / ſ / except that the air pressure is weaker and the vocal cords are made to vibrate so that voice is produced during the articulation of the sound. The English sound / 3 / is closer to / ſ / than the other English sound / j /. A.C. Gimson says: "The oppositions between / ſ / and / 3 / are rare."

We can conclude that the Arabic / ſ / which is approximated to / j / is similar to the English / 3 /. The sound / ſ / moves back towards the sound / j /. The word 'ašdaq (having a large mouth) will be pronounced as [ 'a3daq ]. To state a form for this movement, we may say:

+ consonant. + consonant. + consonant.
+ hushing - hushing - continuant
- voiced - + voiced - voiced

Š 3 d (optional)

4. Šād / ſ / approximated to zay / z /:

This is called as- šād al-mushammah; it has some

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45 Aspects of Language, 79.
47 An Introduction to the Pronunciation of English, 190.
features of /z/, and is pronounced as between pure šād /ʃ/ and zay /z/.

/ʃ/ is a voiceless emphatic⁵⁰ alveolar fricative, while
/z/ is a voiced non-emphatic alveolar fricative.

The approximation of /ʃ/ to /z/ is described thus by Ibn Jinni "The voicelessness of the šād approximated to zay decreases and it acquires some voicedness by becoming close to /z/"⁵¹. This occurs under the influence of another sound in one particular environment, namely before the sound /d/, which is voiced. The form for this movement may be designated

⁴⁹ "Ishmām (approximation), to the qurrā', indicates one of these four things:

1 - Approximating a consonant to another consonant as in aš-širāt (the path), ašdaq (more truthful), and musayṣīr (ruler);
2 - Approximating a vowel to another vowel as in qīl (to be said) and yīd (to become less (water));
3 - Partially suppressing a short vowel so that it lies halfway between iskān and tahārik, as in some readings of the verse taʿmāna alā Yūsuf (you trust us with Joseph) [for taʿmanuna] ...;
4 - rounding of the lips after a sukūn, which is discussed in the chapter on pause " (Ibrāz al-Maṣāni, 71-72) [the mouthing of a vowel in a pause].

Another term close to ishmām is rauwm, which is also the partial pronouncing of the harakah. The difference between the two terms is that the former cannot be heard but only be seen, while the latter is heard also. In fact, the Kufan school call ishmām rauwm and rauwm ishmām. (for more details see an-Nashr, 2 / 121).

⁵⁰ Speech sounds produced by using constrictions between the velum and tongue or tongue and pharyngeal walls are traditionally known by phoneticians as emphatic sounds " (see Latif Hasan Ali and R. G. Daliloff, "A Contrastive Cineflougraphic Investigation of the Articulation of Ephatic-Nonemphatic Cognate Consonants", Studia Linguistica, 26 (1972), p. 81.

⁵¹ Sirr ṣināat al-ʿirāb, 1 / 50-51.
as:

\[
\begin{align*}
\text{+ consonant.} & \rightarrow \text{+ consonant.} & \rightarrow \text{+ consonant.} \\
\text{+ continuant} & \rightarrow \text{- continuant} & \rightarrow \text{- continuant} \\
\text{- voiced} & \rightarrow \text{+ emphatic} & \rightarrow \text{+ voiced} \\
\text{- emphatic} & & \quad \text{+ coronal}
\end{align*}
\]

\(\mathcal{S}\) \quad \frac{\mathcal{S}}{d}\) (optional)

where \([\mathcal{S}]\) is pronounced between pure \(\mathcal{S} d / \mathcal{S} /\) and zay / z / Thus \(y\text{aFdur}\) (step out), would be pronounced as \([y\text{aFdur}]\). This condition (being before / d /) is emphasized by Ibn Jinnî in his statement: " / \(\mathcal{S}\) / is changed to / z / or / \(\mathcal{S}\) / before / d / and if it becomes before other than / d /, the changing of it is impermissible "\(^52\). However, the reading of the word \(\text{as-}\text{sirāt}\)\(^53\) (the path) by Abû CAmr as / \(\mathcal{S}\) / and / \(\mathcal{S}\) /, as cUryān reports, \(^54\) where no / d / is involved, does not necessarily invalidate this rule, since "\(\text{as-}\text{sirāt}\) is said to be an alternative form of \(\text{as-}\text{sirāt}\) with / s /, even though this word is written in the Qur'ānic manuscript with / \(\mathcal{S}\) /."\(^55\) Some Arabs, Ibn Jinnî claims\(^56\), "pronounce it as a pure / z /; they say: yazdur (step out) and qazd (intention)"\(^57\) (for \(y\text{aFdur}\) and qas\(d\)

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\(^52\) ibid. I/51.

\(^53\) Qur'ān, 1 / 6.

\(^54\) al-Fārisi, al-Hujjah lil-Qurrā' as-Sab'ah, 1 / 49. The other readings of this word by the scholars are: Ibn Kathir read it with / \(\mathcal{S}\) / and / s /, Abû CAmr, as al-Aṣma'î reports, read it with / z /, Ḥamzah and Ya'qūb read it / \(\mathcal{S}\) /, and the rest of the readers read it with pure / \(\mathcal{S}\) /.

\(^55\) Ibn Mujahid, Kitāb as-sab'ah li al-qirā'āt, p 107.

\(^56\) Sirr sinā'at al- isrā', 1 / 50-51.
1.2.1.2. Vowels:

1. **alif al-imālah** (the alif of inclination). The long vowel /ā/ which is pronounced between actual /ā/ and /ī/ in certain circumstances. There are two degrees of this movement: *imālah shadidah* (heavy *imālah*) and *imālah khafīfah* 59 (light *imālah*). *imālah shadidah* may be symbolized as / ē / 60, while *imālah khafīfah* may be symbolized as [ ē ] . The word /cālim/ (scholar) may be pronounced as [cēlim] or [cēlim] 61. This vowel is a central front vowel.

2. **alif at-tafkhīm** (the velarized alif), is an open back vowel with some rounding of the lips. It is a vowel that has moved upward from / ā / toward / ū /, and an appropriate symbol is [i]. This is the reason behind writing *alif* in Qur'ānic script as *wāw* in some cases, as in [ṣalāh] (prayer), [zakāh] (charity) and [hayāth] (life). There will be more discussion of this sound / ә / in (3.2.5 below).

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57 *ibid*, 1 / 50.

58 There will be more discussion of this point in chapter 2.

59 Sibawayh mentions only *al-imālah ash- shadidah*, *al-Kitāb*, 2 / 404, whereas most of the other linguists mention both.


61 More detail will be given in both sections on vowels and *imālah*. 
1.2.2. Rejected derived sounds:

Arabic phoneticians have listed eight more derived consonants which are non-approved; they are not discussed in detail in classical Arabic. Ibn Jinnî says: "The eight that follow them are disapproved of; an explanation of their characteristics would be lengthy, and so we have omitted them." These eight sounds are:

1. kāf /k/ which is pronounced as between /j/ and /k/.
2. jīm /j/ approximated to kāf /k/.

---

62 These are non-preferred consonants and not used a great deal by pure Arabs (al-Kitāb, 2/404).
63 Ibn Sinâ (Risālah fi makhārij al-ḥurūf, 21-23) lists seven more consonants heard in his time (-1333 A.H.):
   1. /s/ approximated to /z/.
   2. /s/ approximated to /z/.
   3. /r/ approximated to /t/.
   4. /r/ approximated to /t/.
   5. /r/ approximated to /t/.
   6. /r/ approximated to /t/.
   7. Emphatic /r/.
64 Sirr sinârat al-ısrâb, 1/51.
65 Ibn Fâris lists this sound among al-lughât al-maḏmûmah (censured dialects), and he associate it with the Yamani dialect. (al-Muzhir, 1/222-223).
66 Ibn Fâris calls it al-ḥarf al-ıdâ biy n al-qâf wa l-kâf li lughat Tamîm (the sound between /q/ and /k/ in Tamîm dialect). (ibid).
It seems likely that the sound meant by both \( kāf / k / \) which is pronounced between \( jim / j / \) and \( kāf / k / \), and \( jim / j / \) which is approximated to \( kāf / k / \) is the sound \( / g / \); the voiced counterpart of the English \( / k / \).

As far as \( / k / \) is concerned, Ibn Al-Jazārī says: "The plosiveness and voicelessness of \( kāf \) should be regarded and it should not be pronounced as \( al-kāf aṣ-šammā\) (hard / solid / \( k / \)), a sound found in some languages. This \( / k / \) is not accepted in Arabic". Similarly, if \( / q / \) loses its characteristic of \( istiqlā\) (elevation), it becomes \( kāf šammā\) as a result, according to Ibn al-Jazārī. So both \( / k / \) and \( / q / \) come to be \( kāf šammā\), which supports our claim that \( kāf šammā\) may be \( / g / \).

<table>
<thead>
<tr>
<th></th>
<th>Palatal</th>
<th>Velar</th>
<th>Uvular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops</td>
<td>vl.</td>
<td>k</td>
<td></td>
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<tr>
<td></td>
<td>vd.</td>
<td>j</td>
<td>(g)</td>
</tr>
</tbody>
</table>

67 See for example EI-Saaran, Ph. D, 94, and Bakalla, M. Phil, 209, and "Some Remarks on Sibawayh’s Contribution to Phonetics", al-Lisān al-‘Arabi, 18, 1, 28

68 an-Nashr, 1 / 221.
(3) jīm / j / approximated to šīn / š /:

We have seen (in 1.2.1.1 #3) that the sound / Š / which is approximated to / j /, namely [3], is approved but the sound / j / which is approximated to / Š /, however, is disapproved of. It is difficult to see in what respects then two sounds would differ, and why one should be approved and the other disapproved of. In these examples:

\[
\begin{align*}
/ \text{ašdaq} / & \rightarrow [\text{a3daq}] & Š & \rightarrow 3 & \rightarrow d \\
/ \text{ajdar} / & \rightarrow [\text{a3dar}] \\
/ \text{i̬jtamâcû} / & \rightarrow [\text{i3tamaçu}] & j & \rightarrow 3 & \rightarrow [d]
\end{align*}
\]

/ j / is closer to / d / than / Š / is in that it has two features in common; plosiveness and voicedness, while / Š / has neither. However in the third example, where / t / is the dominating sound, / j / and / Š / each share with / t / one main feature; plosive and voiceless respectively; therefore, Ibn al-Jazarī warned that in this case (j+vl) the voicedness and plosiveness of / j / should be emphasized and not weakened, so as to tend towards / Š /. 69 The main reason for accepting the approximation of / Š / to / j / and rejecting that of / j / to / Š / is that / j / is a voiced plosive, and is one of the / qalqalahl 70 sounds, which are required to be pronounced carefully so that they do not acquire other features from neighboring sounds. Ibn al-Jazarī says: "The sound / j / must be articulated from its original place of articulation (the palate).

69 an-Nashr, 1 / 218.
70 Qalqalah sounds are sounds having both voiced and plosive features in Arabic.
It must not move forward so that it tends towards /ṣ/, as is the case with many people in Shām and Miṣr (ninth century A.D.). He specifies the circumstances in which care must be taken, particularly where it is pronounced geminated or before voiceless sounds.

(4) ʾaḍ-ḏād ad-ḏaʿifah (weak /ḍ/)

The standard /ḍ/ is articulated min bayn awwal ḥāffat al-lisān wa mā yalīhi min al-adrās (between the extreme tip of the tongue and the nearest molars to the tongue). It is a voiced emphatic apico-alveolar fricative sound.

As far as the weak ḍād /ḍ/ is concerned, Ibn Yāqīsh explains it as occurring in the speech of those foreigners who find it difficult to pronounce true /ḍ/; they may pronounce it as ṣā /ṣ/, in attempting to articulate it mim mā bayna al-lisān wa ṣāṭrāf aṣ-ṣanāyā (between the tongue and the edges of the front incisors), rather than in its true place of articulation. They in fact pronounce it between /ḍ/ and /ṣ/74. Ibn al-Jazārī claims that none of the Arabic sounds is as difficult as /ḍ/75.

This sound /ḍ/ is pronounced in various ways by

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71 an-Nashr, 1 / 218.
72 al-Kitāb, 2 / 405.
73 In this description, it is articulated in the same place as Ṣ, ʿ, and ẓ.
74 Sharh al-mufaṣṣal, 10 / 127-8.
75 an-Nashr, 1 / 219. However, I. Anis, a modern Arabic linguist, claims that hamzah is the most difficult sound in Arabic. (see al-Aswāt al-lughawiyyah, 90.
foreigners; some pronounce it as /t/, some approximate it to /d/, some to /ð/, some approximate it to /z/, and some pronounce it as emphatic /t/. None of these is accepted. 76

(5). šād /s/ approximated to sin /s/:  

The sounds /s/ and /s/ only differ in the feature of itbāq (emphasis). Sibawayh says: "If there were no itbāq, the sound /t/ would become /d/, /s/ would become /s/, /ð/ would become /ð/, and /ð/ would disappear from speech, since there is nothing to take its place. 77

This shift of the sound /s/ toward /s/ is against the usual nature of assimilation in which the stronger sound affects the weaker sound.

Ibn al-Jazari warns Qur'anic readers to be careful not to pronounce /s/ as /s/ when it is Sākinah (vowelless) before /t/, /t/, /d/, or /d/, as in these examples /wa la bāstum/ (even if you desire), /aššafta/ (did he choose ?), and /ašdaq/ (more truthful). 78

(6) ūd /t/ approximated to tā /t/:  

When /t/ loses its voicedness, it becomes close to /t/, but when it loses its emphaticness, it comes close to /d/. This ūd /t/ approximated to tā /t/ was heard a great deal

76 an-Nashr, 1/ 219.  
77 al-Kitāb, 2/ 206.  
78 an-Nashr, 1/ 219.
from foreigners in Iraq,\textsuperscript{79} during and even before Ibn Ya\textsuperscript{c}ish's time (seventh century A.H.). They would say: \textit{tālib} instead of \textit{ṭālib} (student). Ibrahîm Anîs says: "It is used now in most Arab countries, but nobody recognizes it so as to reject it."\textsuperscript{80} (this century).

(7) \(\ddot{\mathbf{\varepsilon}}\ddot{\mathbf{\varepsilon}}\) / ëë / approximated to \(\mathbf{\varepsilon}\mathbf{\varepsilon}\) / e /:

When / ëë / loses its voicedness, it becomes / e /. Foreigners tend to say: / \(\varepsilon\varepsilon\)lama / for the word / \(\varepsilon\varepsilon\)lama / (treat unjustly)\textsuperscript{81}.

(8) \(\ddot{\mathbf{\beta}}\ddot{\mathbf{\beta}}\) / b / approximated to \(\ddot{\mathbf{f}}\ddot{\mathbf{f}}\) / f /:

<table>
<thead>
<tr>
<th></th>
<th>Bilabial</th>
<th>Labiodental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops</td>
<td>vl.</td>
<td>( p )</td>
</tr>
<tr>
<td></td>
<td>vd.</td>
<td>b</td>
</tr>
<tr>
<td>Fricatives</td>
<td>vl.</td>
<td>( v )</td>
</tr>
<tr>
<td></td>
<td>vd.</td>
<td>f</td>
</tr>
</tbody>
</table>

(sounds between parentheses are not Arabic)

According to Ibn Ya\textsuperscript{c}ish, this sound is frequently used in Persian\textsuperscript{82}. They say: / \(\mathbf{f}\varepsilon\varepsilon\) / instead of / \(\mathbf{b}\varepsilon\varepsilon\) /; presumably

\textsuperscript{79} Sharh \textit{al-mufassal}, 10 / 128.
\textsuperscript{80} \textit{al-\textasciitilde{A}swât al-lughawiyah}, 52.
\textsuperscript{81} Sharh \textit{al-mufassal}, 10 / 128.
the pronunciation /vʊr/ is indicated.

/b/ differs from /f/ in three main features: voicenness, plosiveness, and the place of articulation. So which feature of /b/ must change in order for it to move towards /f/? If it changes its voiceness, the result is similar to the English /p/ 83, and if it moves backwards in place of articulation, or if the blockage of the airstream is not complete, the resultant sound is /v/.

Some linguists consider this approximated /b/ to be similar to the English /v/, among them El-Saaran 84, while others belief it to be similar to the English /p/, among them Bakalla.85

Bilabial plosive sounds are likely to move backwards and have some friction. Latin /p/ becomes /f/ in English, as in these examples:

<table>
<thead>
<tr>
<th>Latin</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>pes</td>
<td>foot</td>
</tr>
<tr>
<td>piscis</td>
<td>fish</td>
</tr>
<tr>
<td>pater</td>
<td>father</td>
</tr>
</tbody>
</table>

82 ibid.

83 It is interesting to quote here M. Brame who says that "of course this is the case historically, that is phonetic /f/ did derive from Semitic /p/". (Arabic Phonology. Ph.D. Thesis, 1969, Massachusetts Institute of Technology, 18.)


85 "Some Remarks on Sibawayhi's Contribution to Phonetics " al-Lisân al-ʿArabi, 18, 1, 28.

86 Bloomfield, Language, 347.
In fact, there is not much detailed description given concerning these rejected derived consonants. We therefore do not know for certain the exact nature of the sounds.

1.3. VOWELS:

"Vowels are speech sounds made by shaping the oral cavity while allowing free passage of air from the lungs. The primary criteria for the classification of vowels are: (1) the distance between the top of the tongue and the roof of the mouth and (2) the retraction or extension of the tongue." 87 "... their outlets are wide for the air of the sound; and none of the (other) letters has wider outlets than theirs..." 88

Arabic has six primary vowel phonemes, 89 namely a, i, u, ā, ī, and ū. In spite of the fact that short vowels - as we have previously stated - do not always appear in writing, and in spite of the fact that they were studied by the earlier Arabic linguists only in relation with consonants, they are not totally ignored as an independent class of sounds, as one modern linguist thinks. 90

87 C. Sloat and others, *Introduction to Phonology*, 10.
89 They are not as N. Yushmanov (*The Structure Of Arabic Language*, 12) claims: "Arabic has three vowel phonemes, A, I, U. They may be short (a,i,u) or long (ā,ī,ū)." It is understood from his statement that three of the vowels are allophones of the others. This is not; since both may occur in the same environment.
The question to be raised here is, how far did the early Arabic linguists recognize the short vowel in their analysis of the phonetics and phonology of Arabic? In answering this question, the following points may be considered:

(1) The early Arabic linguists do not always organize their work systematically. They mingle different things together, and introduce the same points in more than one place. It is therefore normal to find a phenomenon which is discussed in great detail, although no separate chapter is devoted to it. The vowel is one of these, especially the short vowel.

(2) Although Arabic linguists differentiate between long and short vowels by considering the former as ِّهِّرُُ (letters) and the latter as ِّهِّرَكَّ (movements), they do in fact believe that long and short vowels are the same except in duration. Ibn Jinni comments "Know that the ِّهِّرَكَّ (short vowels) are parts of ِّهِّرُُ al-madd wal-lin (long vowels and..." (1982), p.190.
glides), namely ā, ū, ĩ, y, and w. The early grammarians name fatḥah / a / the small alif / ā /, kasrah / i / small yā / ĭ / y and dām māh / u /, the small wāw (ū / w ⁹¹. He continues: "Do you not know that long vowels may be found longer in some phonetic environment such as before the glottal stop / ۹۲ / and geminated consonants ... So the short vowel may be made longer and become a long vowel with ḵisḥāʾc.⁹²

(3) Arabic linguists see other similarities between the ḥarākāt and the ḫurūf in terms of their function:

a. Sibawayh explains why the sound / ŝ / remains and is not approximated to / d / in such words as / șādaqa / (he told the truth), by becoming / z / or / ŝ /. He states that / ŝ / and / d / are not contiguously pronounced; the short vowel / a / separates them.⁹³

b. Abū cAli al-Fārisī (-377 A.H.) considers the short vowel to be as adequate a barrier as the long vowel, for example:
   ā : / šādiq / (truthful), and
   a : / șādaqa / (he told the truth).

Both / a / and / ā / prevent the assimilation of / ŝ / and / d /.⁹⁴

c. Ibn Jinnī says: "When a consonant is followed by a short vowel, the vowel separates it from the following

---

⁹¹ al-Khaṣṣāʾiṣ, 2 / 327, and Sirr ṣināʿat al-ʾirāb, 1 / 17.
⁹² Sirr ṣināʿat al-ʾirāb, 1 / 19-20.
⁹³ al-Kitāb, 2 / 426.
⁹⁴ al-Ḥujjāh lil-qurrāʾ as-sabrāh, 1 / 54.
consonant. The difference between two consonants and the barrier of the short vowel come to act - in preventing assimilation (badal) - as a barrier ְּֽאָרִף (consonant or long vowel) between the two similar consonants".\textsuperscript{95} A short vowel acts as a barrier between two similar consonants.\textsuperscript{96}

(4) Finally, because they believe that a long vowel and its corresponding short vowel are the same (as stated before in 2 above) except in duration, they appear to find it unnecessary to discuss the short vowels separately.

With regard to the vowel in general, "it seems obvious that Sībawayh (and other Arabic linguists) are aware of the distinction between phonetics and phonology. To describe the phonetic properties of the vowel, Sībawayh called them letters of \textit{madd} and \textit{lin} (softness and prolongation), and he called them \textit{cīlah} (letters) to describe the way they behave within the structure of Arabic."\textsuperscript{97}

Another question to be raised here is how much the early Arabs know of the nature of the vowel in their language, and how accurate their description of the vowel is.

It is not easy to answer such questions. Again some points may be detailed here (a full analysis of vowels is beyond the

\textsuperscript{95} ʾAl-Muṣīf, 2 / 335.  
\textsuperscript{96} ʾAl- Khaṣāṣīs 2 / 320.  
\textsuperscript{97} ʾAn-Naṣṣīr, Sibawayh the Phonologist... 63.
Most Arabic linguists discuss vowels in conjunction with consonants, in respect of the place of articulation, including Sibawayh, al-Mubarrid, Ibn Jinnī, az-Zamakhsharī, and Ibn Yaṣīṣ. In fact Ibn al-Jazarī seems to be the most accurate, since he groups the vowels and he differentiates, with respect to the place of articulation in particular, between the two vowels /ū/ and /ī/ and the two semi-vowels /w/ and /y/, which are represented similarly in Arabic script.

2- All the linguists of whom I have made mention so far consider vowels as voiced phonemes.

3- All of them describe vowels as neither stops nor fricatives, but resonants.

4- In the matter of ease of utterance of vowels, Sibawayh says: "alif /ā/ is khafīfah (light, i.e. lax), because neither the tongue nor the lips move. It is as easy to produce as the breath. It is therefore not as thaqīlah (heavy, i.e. tense) as wāw /ū/ or yāʾ /ī/".\(^{98}\) To sum up:

\[
\begin{array}{ccl}
\text{/ā/} & = & \text{+ lax - tense} \\
\text{/ū, ī/} & = & \text{- lax + tense}
\end{array}
\]

(5) With relation to jaw opening, the Arabs divide vowels into two groups: first, the open vowel which is produced with wide jaw opening, where the distance between the tongue and the roof of the mouth is great. This is the case with the long vowel

\(^{98}\) al-Kitāb, 2 / 357, see also Sirr ṣināʿat al-ṭāb and Diwān al-adab 1 / 87.
/ā/99, and what they consider to be its short counterpart /a/. Second, the close vowel which is produced with narrow jaw opening. This is the case with both /i/ and /ū/100 and their counterparts /i/ and /u/. They realize, more specifically, that the sound /i/ is more open than /ū/ and less than /ā/, but that it is more close to /ū/ than to /ā/. This division helps them in their discussion of the interchange between vowels, with /i/ and /ū/ interchanging with one another more than they do with the /ā/ because of this closer relationship. More details and examples will be provided later in this thesis.

(6) In the case of the shape of the lips, the only primary rounded vowel is /ū/ and its counterpart /u/. Other vowels are unrounded.

99 al-Kitab, 2 / 406.
100 Ibid.
Main features of primary Arabic vowels

<table>
<thead>
<tr>
<th>Vowels</th>
<th>a</th>
<th>ā</th>
<th>i</th>
<th>ī</th>
<th>u</th>
<th>ū</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Front</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>High</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Low</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Lax</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tense</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Round</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Close</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Open</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Long</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

(7) When the Arabs speak about the quantity and duration of vowels, they consider a short vowel as a part of its corresponding long one. The only difference between them is its duration.\(^{101}\) Modern linguists agree with this conclusion.\(^{102}\) Others claim that

---

\(^{101}\) See for ex. Sirr ṣināʿat al-īrāb, 1 / 19.

\(^{102}\) M. al-Mubārak, Fiqh al-lughah wa-khasā'is al-arabiyyah, 45.
the differences are in terms of quality as well as in quantity, since the position of the tongue is not the same, as represented in the following chart by Al-Anī:

![Diagram](image)

Al-Anī came to this conclusion by using x-rays (in spectrographic displays); another linguist has come to the same conclusion by using minimal pairs with the long vowel and its corresponding short vowel: In the minimal pairs /kataba/ and /kātaba/, the pairs of vowels /a/ and /ā/ are different in quality as well as in quantity. The short vowel is slightly more fronted and less open than long vowel.

The ration of time that a short vowel takes is only half of that of a long vowel, this is to say 1:2. This ratio may become as

104 *Arabic Phonology*, 25.
105 This was with an Iraqi subject.
high as 1:6 in, for example, the reciting of the Qur’ān, where a long vowel becomes extra long. The difference between these extra long vowels (ā, ī, ū) and the normal long vowels is not phonemic. It is optional in normal speech and reading, but recommended in the reciting of the Qur’ān. The two vowels are regarded as allophones of the same phoneme, as in the following examples.107

\[\begin{align*}
\text{ā} & \rightarrow \text{āa} \\
\text{i} & \rightarrow \text{iā} \\
\text{ū} & \rightarrow \text{ūu}
\end{align*}\]

1. Before hamzah in medial and in junctural positions;
2. Before geminated consonant in medial position,
3. In a pre-pausal position,
4. In fawātiḥ as-suwar (the beginnings of sūrahs).

\[\begin{align*}
\text{āa} & \rightarrow \text{wa jā'ā (and he came),} \\
\text{dābbah} & \rightarrow \text{(animal),} \\
\text{ar-Rahmān} & \rightarrow \text{(the merciful),} \\
\text{Qāf} & \rightarrow \text{(the letter / q /).}
\end{align*}\]

\[\begin{align*}
\text{iā} & \rightarrow \text{wa jīṭā (and (they) were brought),} \\
\text{ar-Rahīm} & \rightarrow \text{(the compassionate),} \\
\text{Ḥa MĪm} & \rightarrow \text{(the letters ḥ and / m).}
\end{align*}\]

\[\begin{align*}
\text{ūu} & \rightarrow \text{sū (evil),} \\
\text{ṣātīḥājjūn (come) you to dispute with me, ...?),} \\
\text{turḥamūn (you may obtain mercy),} \\
\text{Nūn} & \rightarrow \text{(the letter / n /).108}
\end{align*}\]

108 More detailed description will be given later, in the sub-chapter of vowel lengthening and shortening, pp. 248-258.
The over-long vowel is not the only allophone of the vowels in Arabic. Most of the vowels may have allophonic variants which occur in different environments. We have seen (in 1.2.1.2. above) some of the allophonic variation of vowels. In brief, the secondary vowels,\textsuperscript{109} which can be regarded as allophonic or dialectal variations, are:

1. \( \ddot{a} \) → \( \ddot{e} / \text{raḥmah} / \rightarrow [\text{raḥmeh}] \) (mercy) (light imālah),
   e / \text{raḥmah} / \rightarrow [\text{raḥmeh}] \) (strong imālah),
   o / \text{raḥmah} / \rightarrow [\text{raḥmēh}] \) (tafkhīm),
   a/ \text{raḥmah} / [\text{raḥmah}] \) (standard).

2. \( \ddot{a} \) → \( \ddot{e} / \text{cālim} / \rightarrow [\text{cēlim}] \) (scholar) (light imālah),
   ē / \text{cālim} / \rightarrow [\text{cēlim}] \) (strong imālah),
   ā / sā′a / \rightarrow [sā′a] \) (be bad) (over-lengthening),
   ā / qāla / (he said) (standard).

3. i → i / šiyām/ \rightarrow [šiyām] \) (fasting) (i approximated to u),
   i / labisa / (he wore) (standard).

4. i → i / qīla / \rightarrow [qīla] \) (it is said) (i approximated to u),
   ī / si′a / \rightarrow [sī′a] \) (... he was grieved...) (over-lengthening),
   ī / fil / (elephant) (standard).

5. ū → u / m a ʾ cūr/ \rightarrow [m a ʾ cūr] \) (frightened) (ū approximated to i),
   ū / sūʤ / \rightarrow [sūʤ] \) (badness) (over-lengthening),
   ū / sūr / (fence) (standard).

\textsuperscript{109} al-Khaṣāṣīs, 3 / 121, and Sīr ʿināʿat al-i-rāb, 1 / 50-51.
To compare Arabic and English, the long vowel in Arabic is a pure vowel, while it is diphthongized in English.\(^1\)

Generally speaking, secondary vowels in Arabic are non-functional sounds; in the following example, the two words of the pairs are morphologically identical:

\[
\begin{align*}
cālim & \quad \tilde{c}ālim \\
salāt & \quad \tilde{sal}āt \\
qīla & \quad qīla \\
maḍʕur & \quad maḍʕur \\
sīra & \quad sīra \\
sūr & \quad sūr \\
\end{align*}
\]

---

\(^{1}\) Gairdner, *Phonetics of Arabic*, 35.
1.4. Semi-vowels:

A semi-vowel is "a speech sound which can have certain features of a vowel and consonant; such sounds have open approximation of the articulators and very little friction noise." They are sometimes called glides. Arabic, like many other languages, has two semi-vowels only: /y/ and /w/. They both involve tongue raising as a main feature. The movement is upwards, and for /y/ is forwards, but for /w/ is backwards.

As we have seen earlier, the two semi-vowels in Arabic have no special symbols in the writing system; they have the same as those of the corresponding long vowels. Even though the two letters function as long vowels and as semi-vowels / similar semi-consonants / glides, it is not difficult to differentiate between them. A long vowel in Arabic cannot be followed by a short one; if so the long vowel will become a semi-vowel. 

1. a. cvc as in māl (wealth),
   cv as in mā (what),
   
   b. *vc 112
      * cvv

2. a. y+ v as in yabisa (dried),
   c+y as in ǧaby (gazelle),
   v+ y + c as in bayt (house),

111 R. Hartmann, Dictionary of Language and Linguistics, 205-206.
112 This sign (*) will be used in this work to denote that the respective sound, word, or combination does not occur in Classical Arabic or any language in question.
v+ y+ v as in bayān (announcement),

b. w + v as in waṣada (promised),
c+ w as in jarw (puppy),
v + w + c as in nawm (sleeping),
v + w + v as in mawādd (material).\(^{113}\)

Being semi-consonants, /w/ and /y/ do not interchange as frequently as their correlate long vowels /ū/, and /ī/. Sibawayh and other grammarians emphasize this.

Diphthongs in Arabic are a combination of a vowel and a glide /semi-vowel.

1.5. Distinctive features:

A sound should be distinguished from other sounds by at least one feature, in order to be regarded as an independent phoneme. Such features are also important in that they are held to account for the occurrence of assimilation between some sounds and not others.

There are many distinguishing features to be discussed in relation to the place of articulation, manner of articulation, tongue position, lip shape, and prosodic features. However, we will discuss only some of the most important features; the others will be presented in chart form.

\(^{113}\) More details will be seen later.
1.5.1. Voiced versus voiceless:

Sounds produced with the vibration of the vocal cords are called voiced, those that are not called voiceless.

The term voiced is the most common equivalent of the Arabic majhūr. As the term voiceless is of the Arabic mahmūs. Other terms used to render these two Arabic words are as follows:114

- **majhūr** vs. **mahmūs**
- fortis vs. lenis
- non-breathed vs. breathed
- pressed vs. non-pressed
- sonore vs. sourd
- sonorous vs. muffled.

The earlier Arabic grammarians and phoneticians agree that the voiceless sounds are: h, ḥ, x, ǧ, s, š, t, ẓ, and f. They all have all been described by modern linguists as voiceless in today's fuṣḥā "standard language" (M.S.A.).

The voiced consonants, according to the almost unanimous opinion of the early Arabic grammarians, are: 3, c, x, q, j, y, ǧ, l, r, n, t, d, z, š, ǧ, b, m, and w. These are all undoubtedly voiced in modern Arabic, with three exceptions: the glottal stop / ʔ /, / q /, and / ʕ /.

---


These three sounds must either have changed over the years or have been originally wrongly described by either early or modern linguists.
### Distinctive Features of Arabic Sounds (1)

<table>
<thead>
<tr>
<th>Sounds Features</th>
<th>b</th>
<th>m</th>
<th>f</th>
<th>ẓ</th>
<th>ṣ</th>
<th>l</th>
<th>n</th>
<th>z</th>
<th>s</th>
<th>š</th>
<th>d</th>
<th>ṭ</th>
<th>t</th>
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</tr>
</thead>
<tbody>
<tr>
<td>consonantal</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<td>+</td>
<td>+</td>
</tr>
<tr>
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<td>-</td>
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<tr>
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<td>+</td>
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<td>-</td>
</tr>
<tr>
<td>voiced</td>
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<td>+</td>
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* The feature "high" is limited here to vowels. Consonants described as high / mustaqf / are listed under "emphatic".
(Distinctive Features of Arabic Sounds (2))

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The features “tense”, “high”, “low”, “back”, “round”, and “long” are relevant mainly to the production of vowels.
A consideration of certain aspects of these three sounds may help to resolve this.

1. /ʕ/:  
   a. The written symbol for this sound is in most cases dependent on another symbol, i.e. one associated with a long vowel:  
      on /alif/, e.g. "אַל " (to eat),  
      under /alif/, e.g. "אֶל " (Ibrahim),  
      on /wāw/, e.g. "אֶל " (a believer),  
      on /yā/, e.g. "אֵל " (it was read),  
      independent, e.g. "אָל " (load).  
   b. This sound, as we have seen, has allophones in which it becomes musahhalah (pronounced easily) and bayna bayna (in between the actual glottal stop and the vowel that precedes it). In this respect /ʕ/ gains some voicedness from the vowels. The Arabs describe it in a way similar to the vowels. In point of fact, they describe the features of some of its allophones and they generalize them.  
   c. Because of its frequent connection with alif /ā/, the Arabs may have described it as if they had been describing alif /ā/ in the matter of voicedness.  
   d. The vibration which immediately follows the release of sound gave the Arabic grammarians the impression that this sound is voiced.  
   e. On the other hand, the glottal stop /ʕ/ has been described

116 Cantineau, Durūs fi 'ilm ašwāt al-arabiyyah, 35.  
as neutral in respect of voicedness; it is neither voiced nor voiceless.  

2. /q/:

The sound /q/ is described as a voiced uvular stop by the early grammarians; however, in contemporary standard Arabic it is realized as voiceless. I believe that it was a voiced sound, for these reasons:

a. The unanimous opinion among both early linguists and tajwid scholars is that this sound is voiced.

b. The linguists list it among the qalqalah sounds.

c. A modern linguist believes that Classical Arabic had a voiced as well as a voiceless /qaf/ in Sibawayh’s time. The symbol given to this sound /q/ is for the voiceless sound that occurs in most modern Arabic. The Classical voiced Arabic /qaf/ should have a voiced symbol [G].

d. In the Sudan, Qur’anic readers pronounce it voiced.

e. This sound is voiced in some modern Arab dialects such as those of the northern Arabian Peninsula and eastern Tunisia. This fact makes modern linguists believe that it was

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120 Ph.D. Thesis, p. 224. Abu Bakr graduated from the Khalwas school of Qira’at in Sudan. He was advised by his teachers (1943) not to pronounce the sound /q/ as a voiceless stop (ibid).
originally a voiced sound in Classical Arabic.121

3. /t:\/

Again this sound is described by al-Khalîl and his successors as voiced, while it is found in modern Arabic as voiceless. Sîbawayh states that "This sound without ītbat would be /d\ /122, which is voiced "123. In the science of Qirâštât, it is listed among the qalqalâh sounds which are voiced. Moreover, it is found voiced in some dialects of Yemen124 and Tchad.125

There is also another variant of the sound /t:\/ namely the /t:\/ approximated to /t\/, which was disapproved of in Classical Arabic.126 This secondary sound may have driven out the original one, which has gradually been disappearing from most forms of Arabic.

In fact, modern qurrâ', unlike the modern linguisticians, regard these three sounds /t\/, /q\/, /t:\/ as voiced consonants, as they are described in classical Arabic.127

121 Cantineau, *Durûs li ilm aßwât al-arabiyah,* 110.

122 Using for Arabic târ the phonetic symbol /t\/ is not accurate for a voiced Classical Arabic [\t\ ]; however, it indicates the modern voiceless sound, the counterpart of /t\/. Classical /târ/ is a counterpart of /d\/ and a better symbol for it would be /d\/. As for the sound [\t\ ], /\d\/ would replace /d\/.

123 al-Kitâb, 2 / 406.

124 This is stated by Glaser and restated later by Rossi (see: Cantineau. *Durûs li aßwât al-arabiyah,* 50).

125 Mentioned by Kampffmayer in his article on the Arab dialects of vadai (east of Lake Tchad); see Cantineau (ibid), 51.

126 See 1.2.2. no. 6, above.
1.5.2. Continuants vs. non-continuants:

Arabic phoneticians have divided Arabic sounds into three groups in relation to continuity: the first group is *shadidah* (stops or plosives) which are produced by a complete oral closure and velar closure.\(^{128}\) Arabic has eight stop consonants, they are: \(\emptyset, q, k, j, d, t, \emptyset, \) and \(b\). The second is *Rikhwah* (fricatives). Arabic fricative sounds are: \(h, ñ, x, ñ, ç, ñ, ñ, z, ñ, ñ, ñ, \) and \(f\). It is surprising to find unanimous exclusion of the sound \(/c/\) from fricative sounds by the early Arabs. I assume that the reason behind this exclusion is al-Khalîl's consideration of \(/c/\) as the farthest sound in the *qaîl*\(^{129}\) (pharynx), which he considered to be close to the point of articulation of the vowels. Thus al-Khalîl's followers all regarded \(/c/\) as neither stop nor fricative.\(^{130}\) Ibrāhîm Anîs gives another possible explanation: "The reason might be the weakness of its *qaîl* (rustling) in comparison with \(/ç/\); this weakness brings it close to \(/m/, /n/, and /l/ which are close to vowel sounds.\(^{131}\) The third group is resonants or sonorants, sounds in between stops and fricatives. This group

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\(^{127}\) See for example: *Abd ul- Fattâh al- Marsâfi, *Hidayat al-qâri 'ilâ tajwid kalam* al- Bârî, 97.

\(^{128}\) C. Hockett. *A Course in Modern Linguistics*, 70.

\(^{129}\) *al- Ayn*, I/ 47.

\(^{130}\) *Ibn al-Jazari lists /ç/ among sounds that are neither stop nor fricative* (an -Nasîr, 1 / 202), but when he discusses it elsewhere, he regards it as a stop. He says: "If /ç/ is vowelless (*sakinah*) and followed by a vowelless sound, its voicedness and plosiveness should be maintained" (an -Nasîr, 1 / 220)

includes the Arabic sounds:

nasals: m and n,
liquids: l and r,
glides: w and y,
vowels: a, ā, i, ı, u and ū,
and as we have seen the Arabs add the sound / ɔ /
wrongly.

Both the early qurrā, and the modern qurrā describe
this sound as bayna ash-shadidah wa ar-Rikhwah (neither stop
nor fricative, i.e. sonorant). 132

132 See for example: Abdul- Fattāh al- Marṣafī, Hidayat al-qāri 'ila tajwid
kalâm al- bāri, 97.
Chapter Two
Chapter Two
Types of Assimilation

2.1. Definitions:

Before giving the definition of the phenomenon of assimilation, some examples will be provided as illustrations:

1. /* idtačā / → [ iddačā ] (he claimed)
   \[ t → d / d \]
   where: C₁ C₂ → C₁ C₁ (C = consonant)

2. / * āl šābir / → [ āṣ šābir ] (patient)
   \[ t → s / s \]
   where: C₁ C₂ → C₂ C₂

3. / * waṣṭābir / → [ waṣṭābir ] (and be patient)
   \[ t → t / s \]
   where: C₁ C₂ → C₁ C₃

4. / ḍan būrika / → [ ḍam būrika ] (that blessed are)
   \[ n → m / b \]
   where: C₁ C₂ → C₃ C₂

5. / ḍin kuntum / → [ ḍin ḫuntum ] (if you are)
   \[ n → ṇ / k \]
   \[ k → ḫ / n \]
   where: C₁ C₂ → C₃ C₄

(The mark [ ] indicates nasality of sounds, and the symbol [ η ] indicates a velar nasal.)

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1 The use of C here is purely arbitrary, since assimilation is not limited to consonants but also extends to include vowels and semi-vowels. It would perhaps be more accurate to use S = "sound".
6. / ʾiḥtalama / → [ iṯtalama ] (to do injustice)
   
   $t \rightarrow \ddot{t}$ / $\dddot{t}$
   
   $\ddot{a} \rightarrow \ddot{t}$ / $\dddot{t}$
   
   where: $C_1 C_2 \rightarrow C_3 C_3$.

   It is perhaps appropriate to give other linguists' definitions before I give my own.

1. Ida C. Ward: "Assimilation may be defined as the process of replacing a sound by another sound under the influence of a third sound which is near to it in a word or a sentence.".

   This definition is not complete enough to cover all possible kinds of assimilation. Three of our preceding examples (1, 2, and 5) are outside of the phenomenon of assimilation according to this definition, since the influence is that of one sound upon the other and not that of a third.

2. R. Hartmann: "The process of result of two sounds becoming identical or similar, due to the influence of one upon the other".

   The environment here excludes two of the preceding examples (3 and 4), since the effect there is caused by a third sound.

3. D. Abercrombie: "changes in pronunciation which take place under certain circumstances at the ends and the beginnings of words".

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4 *Elements of General Phonetics* (1967), 133.
This definition excludes the middle of the word as an environment where assimilation might take place, as in our examples (1 and 3) above.

Arabic is not the only language that has assimilation in the middle of words; many other languages have, including English. The English word / congress / is pronounced as [ congress ].

4. Roger Lass: "In assimilation, one segment becomes more like (or identical to) another (or two become more like each other)".\[^5\] This definition does not give the reason for assimilation.\[^6\]

These definitions are merely examples of those given by different linguists. I am not ruling out the possibility that there are more accurate definitions unknown to me.

By combining more than one of the above definitions, we can produce a more accurate definition: assimilation is the process in which sounds become identical or more alike under the influence of a third sound or that of one upon the other. It may occur at the beginning, in the middle, or at the ends of words.

Assimilation is the most common cause of sound change. It plays a great part in phonology and phonetics. Thus it occurs frequently, both as a wide general heading and as one of a number of sub-headings of some other wide general heading. Examples of the sub-headings found under it are:

\[^5\] Phonology... (1984), 171.

\[^6\] A definition similar to this is given by C. M. Wise. Applied Phonetics (1975), 153.
a. nasalization,
b. palatalization, 7
c. assibilation, 8
d. vowel harmony.

Examples of headings under which it may occur are:
  a. sounds in context,
  b. sound change,
  c. morphophonemic change,
  d. sound shift,
  e. phonetic laws,
  f. sounds in connected speech,
  g. phonological processes.

similitude:

Some linguists differentiate between similitude and assimilation. Similitude has been defined as "the pronunciation of one segment being influenced by the pronunciation of an adjacent segment". Daniel Jones says that "The difference between similitude and assimilation must be clearly observed.

7 This process superimposes a palatal articulation on non-palatal consonants which are followed by a front vowel or glide. Palatalization produces sounds such as the \[ p^\math{\gamma} \], \[ m^\gamma \], \[ k^\gamma \], and \[ t^\gamma \] in the words 'pure', 'mule', 'cute', and 'few' from the palatal consonants \[ p \], \[ m \], \[ k \], and \[ f \] . (See C. Sloat, Introduction to Phonology, 113.)

8 "The process by which a stop consonant becomes a sibilant (groove fricative, groove spirant whistling) consonant owing to assimilation" (see R. Hartmann and others, Dictionary of Language and Linguistics, 21, 208.)

9 Hartmann, Dictionary of Languages and Linguistics, 209.
Similitude is the use of a certain variety of sound at the present
time. An assimilation is the process of replacing one sound by
another under particular conditions.  

From these definitions of assimilation and similitude, it is to
be noted that the main difference between the two processes is
that, in similitude, a sound is compared with itself in different
positions, while, in assimilation, a sound is compared with
neighboring sounds.

An example of similitude is the voiceless velar stop sound
/ k / which is articulated forward after front vowels as in the
word / kill /, and backward after back vowels as in the word
/ call /. A simple form for this is as below:

\[
\begin{align*}
  k & \rightarrow \text{front} / \_ \_ v \\
    & \quad + \text{front} \\
  k & \rightarrow \text{back} / \_ \_ v \\
    & \quad + \text{back}
\end{align*}
\]

Similitude, however, may perhaps still be considered as a
branch of assimilation.

A question to be raised here is that of what the reason
behind the assimilation of sounds is.

Languages behave differently in relation to assimilation. An
accurate rule that applies in one language can not necessarily be
applied to other languages; even within one language dialects
may not behave similarly. In all languages, the phenomenon of
assimilation is found. Considering this point, al-Khalil Ibn Aḥmad
observes that languages are not the same in the way in which

10 The Pronunciation of English, 128.
they combine sounds and form words; that in Arabic certain combinations may occur that may not occur in other languages, and that Arabic avoids certain word-formations that may occur in other languages. Of this last phenomenon, he gives as examples the beginnings of a word with a consonant not followed by a vowel and the consecutive occurrence within a word of two such consonants.\[11\]

An example of these differences is that "an Arabic speaking person would find it difficult to utter the word 'monroe' without assimilating the sound /n/ to that of /r/, producing [* morro*] instead of [monroe]. The same applies to an /n/ that is next to /b/ or /p/ as in 'unborn' and 'unpredictable'. Indeed we know that English shares assimilation of this kind with Arabic in certain words, such as 'impossible' and 'improper'.\[12\]

Differences also occur between even the languages of one family, such as Arabic and Hebrew. An example of assimilation in Hebrew, quoted from Gleason is: "/* mibbayit / (from a house) from the base forms /min / (from) and /bayit / (house)*.\[13\]

Arabic has the same morphemes that Hebrew has cited above./* min / (from), and /bayt / (a house), even though, when the two words occur contiguously, a partial assimilation occurs here and not complete assimilation as happens in Hebrew. The combined words would be pronounced as [mim bayt]. The /n/ does not become /b/ but rather becomes another

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11 A'umar, al-Bahth al-lughawi ind al-arab, 83.
13 Gleason. Descriptive Linguistics, 84.
bilabial sound /m/. This can be reformulated as:

\[ n + b \rightarrow m + b : \text{in Arabic} \]
\[ b + b : \text{in Hebrew} \]

Concerning assimilation, a question to be raised is under what conditions it occurs. Again, languages are not the same so far as these conditions are concerned. However, the prime cause of the phenomenon of assimilation is phonological conditioning.

These changes of sounds are caused mainly by the speaker’s speed of utterance; the rapid movement of the speech organs from one position to another causes both of the two sounds to change either into a third or into two other sounds very similar to one another. The English phrase "this young man", spoken rapidly, would be pronounced as [ˈdiʃ ʃaŋ mən].

When the assimilation of sounds is caused by "careless" speech it is called "negligent assimilation". An example in Arabic is the phrase: sawfa afcai (I will do). This is pronounced as saw afcai or saf afcai. Rapid speech which usually causes the assimilation of sounds to each other or the deletion of sounds, is found mostly among Bedouin.

In general, the following law may be cited for changes in sounds: "when two sounds undergo assimilation, the stronger (s) one dominates the weaker (w) one". This holds good for most cases. A similar statement is made by Ibn Jinni.

15 al-Khaṣāʾīṣ, 2 / 440.
16 I. Anis, Fi al-lahajat al-arabiyyah, 71.
17 J. Foley, Function of Theoretical phonology, 133.
18 al-Munṣif, 2 / 328.
Examples are:

<table>
<thead>
<tr>
<th>Root verb</th>
<th>nomen agentis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. dwm dāwim (continue)</td>
<td>dā'īm (continuing)</td>
</tr>
<tr>
<td>2. ḥwl ḥāwil (try)</td>
<td>ḥā'īl (obstacle / obstructing)</td>
</tr>
<tr>
<td>3. nwl nāwil (hand)</td>
<td>nā'īl (giving)</td>
</tr>
</tbody>
</table>

In columns two and three, the semi-vowel as central radical has the same environment phonologically, although it changes to the glottal stop /ʔ/ in column three for purely morphological reasons; the alternative in the central radical avoids ambiguity.

"Assimilations are not compulsory in many languages, including English. A speaker may, if he chooses, avoid making
They are not mostly obligatory in English as A. al-Fāris thinks.

On the other hand, in Arabic, this point has to be considered from two separate viewpoints, first that of the Arabic language in general, and second that of the recitation of the Qur'ān.

As for the first, some types of assimilation are obligatory. The speaker has to assimilate sounds in certain environments, as for example the /l/ of the definite article (al-), when followed by al-Ḥurūf as-Samsiyyah (the sun letters):

- *al-badr (the moon),
  - al-ṣadr (the chest),
  - as-ṣadr,
  - al-ghār (the cave),
  - *al-nār (the fire),
  - an-nār.

Another case of compulsory assimilation in Arabic is that of the /t/ that is infixed after the first radical in the /ifta'ala/ form and its derivatives. This /t/ is replaced by the emphatic sounds /ṭ/ in certain environments; after ʿɪtbāq sounds [ṣ, ẓ, ẓ, ḥ, ḥ]:

- */iṣṭabara / → [iṣṭabara] (to become patient),
- */iḍṭaraba / → [iḍṭaraba] (to be shaken or disturbed),
- */iḍṭalama / → [iḍṭalama] (to act unjustly),
- */iṭṭalāca / → [iṭṭalāca] (to become clear).

is replaced by /d/ after /d/, /ḍ/, and /z/:

19 Abercrombie, Elements of General Phonetics, 135.
In fact most contiguous assimilations in Arabic are either obligatory or recommended; most non-contiguous assimilations are optional.

As for the second viewpoint, that of the recitation of the Qurʾān, we find that Muslims in general and qurrā' in particular take special care in this; in the recitation of the Qurʾān assimilations are obligatory which are optional in ordinary speech. Qurʾān followed the instruction of Ibn Masʿūd, jawwīdū al-Qurʾān wa zayyinūhu bi ʿaḥsani al-ʿašwāt (make excellent your reciting of the Qurʾān and adorn it with the best voice).

We may see from Ibn Mujāhid, a famous scholar in the science of tajwīd, to what extent such assimilation is taken in recitation of the Qurʾān. The following are some verses in which assimilation is obligatory:
Now we turn to Arabic to see what sub-headings may be listed under this general heading of assimilation and also under general headings assimilation may occur:

1. **Idghām**:

The term *idghām*, in its general sense, covers most of the assimilation processes. However, it is not an equivalent term exactly to the English "assimilation". The closest Arabic term to this is *taqārub al-aśwāt*.

The term *idghām*, as used by the Kūfān school of grammar, and *iddīghām* as used by the Baṣrān school, is defined as the gemination in pronunciation of two identical sounds; these may be written as one letter with *shaddah* (doubling marker) above it. This is usually phonetically represented as either (cc) or (c:).

In fact, the Arabs use the term *idghām* for pure gemination without assimilation, complete assimilation which leads to gemination as a final result, and partial assimilation.

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where there is no gemination at all.

These different uses encompassed by the term *idghām* may be represented as follows:

1. **Gemination:**

   in its strict sense, which is the combination of two identical sounds. This gemination may be:
   a. Contiguous, where the two sounds are adjacent without a short vowel in between. This type of assimilation is only found in across-word-boundary positions: \( C_1 - C_1 \). e.g. / bal lahu \( \rightarrow \) ballahu / (but for him). The gemination here is optional, that is to say the speaker can make a short pause without geminating the two sounds.
   b. Non-contiguous, where the two identical sounds are separated by a short vowel which is deleted when gemination occurs, as in this example ṣadada \( \rightarrow \) ṣadda (to shun). [vowel deletion, and gemination].

2. The second status of *an-nūn as-sākinah* and *tanwīn* (the vowelless /n/ and nunation)

   The complete assimilation of \([- n\) with the following six sounds / y, m, n, w, l, and r / results in gemination. Some examples are:

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22 *an-nūn as-sākinah* and *tanwīn* are phonetically the same. They are pronounced as vowelless /n/; however, they have different functions morphologically and syntactically.

23 There is no assimilation when /n/ is followed by another /n/ because they are already identical, but there is gemination.

24 More detailed discussion will be provided later on.
a. Vowelless /n/:

- min wāqin → miwwāqin (of a defender),
- man yaqūlu → mayyaqūlu (who says),
- min mā' → mimmā' (from water),
- min naḏir → minnaḏir (of a warner),
- min rabbihim → mirrabbihim (from their lord),
- min ladunnā → milladunnā (from our presence).

b. Nunation:

- raḥīmun wadūd → raḥīmuwwadūd (compassionate and loving),
- wujūhun yawmaʿiḏin → wujūhuyyawmaʿiḏin (faces on that day),
- qawlun macrūfīn → qawllummaʿrūfīn (kind words),
- yawmaʿiḏîn nāʿīmah → yawmaʿiḏînnāʿīmah (that day will be joyful),
- raʿūfīn raḥīm → raʿūfūrraḥīm (kind and compassionate),
- fa salāmun laka → fa salāmuwwlaka (peace be unto you).

3. Complete assimilation:

complete assimilation can be of two kinds, contiguous and non-contiguous, known as al-idghām as-šaghīr (small) and al-idghām al-kabīr (large) respectively.

An example of the first is:

- *wiwašala → *ittašala (to be connected);

and an example of the second is:

- khalaqakum → khalakkum (He created you).
It is clear that complete assimilation comes about through two processes: first, the changing of one sound so as to be identical with another; second, the geminating of the two identical sounds so as to be one long one. *Idghām*, then, refers essentially to the latter process.

4. Partial assimilation.

An example of this type is: *canbar* $\rightarrow$ *cambar*. Many Arabic linguists however do not refer to this type of assimilation by the name *idghām*. Ibn Jinnī is one of those who do so. He says: "*Idghām* is the approximation of one sound to another sound."25 He gives examples for the various types of assimilation to all of which he gives this name, such as *imālah*, emphatic assimilation, vowel harmony, and voicing assimilation.26

To sum up what the term *idghām* means in classical Arabic, it may refer to any one of the following:

1. Gemination.
2. Assimilation of final /n/ to the six sounds (w, y, r, l, n, m).
3. Complete assimilation.
4. Partial assimilation.

2. *Ibdāl* (substitution):

The term *ibdāl* has been used differently by philologists and by grammarians:

25 *al-Khaṣā'is*, 2 / 139.
26 op. cit., 2 / 141 -145; see also his *at-Taṣrif al-mulūki*, 97-107.
1. *Ibdāl* as used by philologists:

Philologists use it in a specific sense to mean that two words have the same meaning and their forms differ only in one sound. Ibn al-Sikkit (-244 A.H.), lists about 300 words in his *al-Qalb wal-ibdāl*. Some examples of these are:

- *aqýar / aqFal* (shorter),
- *al-cunṣur / al-cunṣul* (the original),
- *ae-eilm / a]-f(Im* (garlic),
- *pazn / Pazm* (hard),
- *laPm / lahm* (meat).

Abū at-Tayyib al-Lughawl (-315 A.H) lists about 2800 pairs of words of this type in his *Kitāb al-ibdāl*.

The best explanation of this type of *ibdāl* is given by Abū at-Tayyib al-Lughawl: "*Ibdāl* does not mean that the Arabs deliberately substitute one sound for another; they (the different forms) are purely dialectal variations with identical meanings". He gives examples: "The same tribe does not pronounce a word sometimes with *hamzah* and sometimes without, nor does it sometimes pronounce a word with *šād / Š / * and sometimes with *sin / s / ... one tribe says this and other tribes say that". So does al-Batalayawsi in his *Sharḥ al-Fasīḥ*. This kind of *ibdāl* is called *al-ibdāl al-lughawl* (linguistic *ibdāl*) or *al-ibdāl as-samicl* (aural *ibdāl*), which cannot be defined by rules. Many scholars have written about this type of *ibdāl*; some have devoted whole books to it. As examples, we may cite:

1. Complete books on *iṣdāl*

   a. *al-Qalb wal-iṣdāl* by al-ʿAṣmaʿī (-216 A.H.), not known to be extant.

   b. *al-Iṣdāl* by Abū ʿUbaydah Maʿmar Ibn al-Muthannā, not known to be extant.

   c. *al-Iṣdāl* by ʿAlī Ibn ʿAsākir, not known to be extant.

   d. *al-Qalb wal-iṣdāl* by Ibn as-Sikkīt (-244 A.H.), printed.


2. Books including chapters on *iṣdāl*


   b. *Sirr sināʿat al-iṣrāb* (id.).


   e. *al-Muzhir* by as-Suyūṭī (-911 A.H.).

2. *Iṣdāl* as used by grammarians:

   *Iṣdāl* is defined by grammarians as "the replacing of one sound (any sound) by another." It is more susceptible to definition by rules than *iṣdāl* samāʿī. It is this kind of *iṣdāl* of which the term is more commonly used. Grammarians divide it into four groups:

   a. *Iṣdāl* shāʿīc (widespread *iṣdāl*) leading to gemination (complete assimilation). This type may be found with any sound except alif /ā/. We have seen this above in

28 ʿĀdīl Zaydān, Abū at-Tayyib al-Lughawi wa athārūhū fi al-lughah, 56 - 60.

29 *Sharḥ at-taṣrīḥ al-ālā at-tawdīh*, 2 / 366.
idghām leading to gemination.

b. *Ibdāl nādir* (rare *ibdāl*) leading to gemination. This is limited to six sounds: ḥ, x, c, q, ḍ, and ġ. Examples are:

waknah / waqnah (the house of a cat in the mountains),

ˈsayann / ˈsaxann (one who speaks nasally),

rubc / rubḥ (quarter),

xaṭar / ˈcaṭar (danger),

jild / jiḍd (skin),

talaqama / talaqama (to falter).

c. *Ibdāl shāʾi* not leading to gemination (partial assimilation).

Khālid al-Azhari divides this type into two groups:

1. Not important for *at-taṣrīf* (accidence). This *ibdāl* may be found among twenty two sounds: 1, j, d, š, r, f, ġ, k, s, ʾ, m, n, ẓ, y, ē, w, b, c, z, t, h, and ā.

2. Important for accidence: this *ibdāl* may be found among nine sounds: ʾ, h, d, t, ẓ, y, ā, w, and m. We will see below that this group is sometimes called *iṣṣāl* or *qalb*.

d. *Ibdāl nādir*, not leading to gemination, as in this example:

/tuṣaylāl → tuṣaylān / diminutive of the word / ʾaṣīl / (the time before sunset). This kind does not work by analogy.

The examples that al-Azhari gives of *ibdāl nādir* cannot be considered as cases of gemination, as he claims.30

The main difference between the philologists and the grammarians in their treatment of *ibdāl* is that the philologists are more specific in limiting *ibdāl* to *samāʾī* (that which is

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30 *Sharḥ at-taṣrīh ʿalā at-tawḍiḥ*, 2/366.
actually heard); while the grammarians regard it as being qiyāsī (analogical) as well as samāṣī. Moreover, *ibdāl* samāṣī may be considered as representing dialectal divisions while *ibdāl* qiyāsī may be considered as not necessarily doing so. It may be obligatory, as in:

/ * raḍiwa —> raḍiya / (to satisfy), or optional, as in:
/ wujūh/ ụjūh / (faces).

*Ibdāl* is widely used in Arabic. It applies to all Arabic sounds. To quote Ibn aṣ-Ṣāigh: "You will not find many sounds that are not involved in ibdāl, even if rarely".  

3. *Iclāl* (literal meaning: weakening):

The grammarians divide *iclāl* into three categories:

a. *Iclāl* bil-qalb:

This is the replacing of a long vowel, a glide, or a glottal stop / / by either of the other two. To grammarians, *iclāl* is more specific than *ibdāl*, because *ibdāl* covers both vowels and consonants; *iclāl* is limited to these three. Another difference between *ibdāl* and *iclāl* is that the former may be samāṣī or qiyāsī while the latter is mostly qiyāsī. Some examples of *iclāl* bil- qalb are:

wišāh / ṭišāh (faces),

* samāw —> samāṣ (sky).

The first example is optional while the second is obligatory.

b. *Iclāl* bin- naqīl:

This is the removing of a short vowel from one sound to another, such as:

31 *al-Muzhir*, 1 / 461.
/ * maqwūl → maqūl (said),
/ * yabyīcū → yabičū (he sells).

According to the grammarians, the glottal /u/ in the first example is shifted from the glide /w/ backward to /q/, similarly kasrah /i/ in the second example is shifted backward from the glide /y/ to /b/.

c. *īlāl bil-ḥaḍf:

This is the deletion of a long vowel, a glide, or a glottal stop. An example of this type of *īlāl is:

/ * yawčīdu/ → yačīdu (promises).

4. Qaḥb:

a. To the grammarians, qaḥb is similar to *īlāl: however, it does not include the deletion of long vowels and the transfer of short vowels as does *īlāl.32 So the examples in (1) below may be, called either *īlāl or qaḥb, while those in (2) can only be called *īlāl:

(1) * mīwzān → mīzān,
    * saṃāw → saṃā’,

(2) * yaqwulu → yaqūlu,
    * yawčīdu → yačīdu.

b. To the philologists, qaḥb is somewhat different, constituting metathesis \[ C_1 C_2 C_3 → C_1 C_3 C_2 \], as in: /jaḍaba / jabāḍa / (draw)." According to as-Suyūṭi, there are no examples of this in the Qur’ān\(^{33}\).

32 an-Najjar M. Diya’ as-sālik, 4 / 246.
33 as-Suyūṭi, al-Muzhir, 1 / 476.
5. Iqlāb:

This term is used mostly in the science of tajwīd to mean the changing of the sound /n/ to another nasal sound /m/ when it is followed by the bilabial sound /b/. Iqlāb is one of the four modifications of nūn sākinah and tānwīn, frequently used in the reciting of the Qur′ān. Some examples of iqlāb are:

/ʔanbāʕ/ → [ ʔambāʕ ] (news, stories).
/min bayni/ → [ mim bayni ] (from between).

6. Ikhlāʕ (literal meaning is hiding or concealing)

This is specifically coalescent assimilation, in which both sounds are affected by one another. It is another modification of the nūn sākinah and tānwīn, when it occurs immediately before these following fifteen sounds : š, ġ, e, k, j, ŋ, t, t, z, č, ẓ, and ɡ. It will assimilate homorganicly and partially to these sounds. An example is:

/ʔan kāna/ → [ ʔap kāna ] (if he / it was). The sounds (n, k) assimilate to one another to some extent.

7. Itbāʕ (alliteration):

This term means two totally different things:

1) Itbāʕ is "ʔan tatbaʕ al-kalimatu al-kalimata calā ważniha ʔaw rawiyyiha ʔishbāʕan wa tawkidan34 (A word being followed by another with the same form or final sound for supplementation and emphasis). As a stricter definition we may say that the two words (sometimes three words) differ in form and sound usually in one respect only, for examples:

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34 al-Muzhir, 1 / 414.
sāghib lāghib (hungry),
ḥasān basān (good or beautiful),
jāγīc nāγīc (hungry),
cāṭshān naṭshān (thirsty),
ḥārr yārr (hot),
khārāb yarāb (ruination).

In these examples, three points may be mentioned:

a. The second word of each set usually has no independent sense.
b. There is usually no conjunction between the two elements of each set.
c. (More important) there is no ibdāl in this type of itbāc, that is to say in the first example / l / does not represent ibdāl of / s /, and similarly with the other sets. The reason for this may be that:

1) In ibdāl, the two forms are not used at the same time by the same speaker.

2) In ibdāl, whichever form is used has an independent sense. ar-Rāzī says: "at-Tābi is not meaningful in isolation", al-Āmidī says: "It has absolutely no meaning at all" 35.

2) The second type of itbāc is what modern linguists call "vowel harmony", in which vowels assimilate to the adjacent vowels progressively or reggressively. An example of this would be:

/ al-ḥamdu lil-Lāhi / → / al-ḥamdu lul-Lāhi / or

35 al-Muzhir, 1 / 415.
/ al-ḥamdi lil-Lāhi / (praise be to Allāh).

This kind of itbāᶜ is important to our topic "assimilation". It is called sometimes Taqrīb (approximation).

Below is a list of other headings or sub-headings under which the Arabs discussed assimilation or some aspects of assimilation:

8. Muḍāraᶜat al-ḥurūf (assimilation or approximation of sounds).
9. Ishbāᶜ al-ḥurūf (the changing of a short sound to a long one).
10. ʾImālah (inclination).
12. Taḏᶜif or tashdīd (gemination).
13. Makhāriṣ al-ḥurūf wa ʾṣifātuḥā (the point and manner of articulation of sounds).
15. Taṣghīr (diminution).

Not all these topics have much connection with assimilation; some of them have to do with it only in minor details.

The scope of this chapter so far may give the reader the impression that the topic of assimilation is an extremely wide one which subsumes many other topics; however, this is not in fact the case, for the following reasons:

1. The Arabs discuss one thing under a number of different headings and sub-headings.
2. Alternatively, they also deal with many topics sometimes unrelated or only loosely related, under one heading.

3. The application of phonetic and phonological rules reduces the bulk of the topic as it at first appears: we shall deal with this later.

The topics from the headings listed above that are most closely related to assimilation will be discussed in detail below.
Examples of these types are as follows: (1) qullahu, (2) cadda, (3) man rahnli

- (9) widespread rare
- (6) widespread rare
- (4) complete
- (3) general
- (2) continuous distant
- (1) assimilation

- (11) term
- (12) term
- (16) word
- (14) ibada
- (13) galb
- (10) idgham
2.2. Direction of assimilation:

When sounds are pronounced contextually, they are likely to influence one another. This influence may work in either direction and sometimes in both.

In the first case, forward influence, a sound is affected by the preceding conditioning one. It is called progressive assimilation, or perseverative assimilation. (S → S) as in: * / j/idaraba / → [ j/idaraba ] (to be confused).

In the second case, backward influence, the preceding sound is influenced by the following one. It is called regressive assimilation, anticipatory assimilation, or retrogressive assimilation (S ← S). Sometimes it is called "umlaut" when it happens between vowels; an example of regressive assimilation is: / * al-shams / → ash-shams [aš-šams] (the sun).

In the third case, where the influence is found in both directions, forward and backward, both preceding and following sounds affect one another. This is called coalescent assimilation, reciprocal assimilation, bi-directional assimilation, or fusional assimilation. (S ← → S); an example is:

/ ḥankalan / → [ ḥagkalan ] (fetters).

The influence of one sound on another is not limited to within a word, it occurs also across word and phrase boundaries. Some examples are:

/ man ra’ā / → [ marra’ā ] (who saw ?).

/ yawma’iḏin wāhiyah / → [yawma’iḏiwwāhiyah] (that day it will be flimsy).
2.2.1. Progressive Assimilation:

Progressive assimilation, where the influential sound seems to be travelling forward, is less common than regressive assimilation, at least in both English and Arabic; even so, instances of progressive assimilation are not as rare as some linguisticians think. The best examples in English are:

1. The suffix /s/ as plural suffix, third person singular suffix, or possessive suffix. This sound is pronounced as actual /s/ after voiceless sounds, and it is pronounced as /z/ after voiced sounds.

\[
S \rightarrow [s] / vl \quad \rightarrow [z] / vd
\]

or in other words: \( S \rightarrow \alpha \text{voice} / \alpha \text{voice} \)

cats [cats]  
dogs [dogz]
books [books]  

2. The past and past participle suffix [d / ed] is pronounced as voiced when preceded by voiced sounds and as unvoiced when preceded by unvoiced sounds. The word / live / is pronounced [lived], and the word / jog / is pronounced as [jogd]. The word / picked / is pronounced [pikt], and the word / finished / is pronounced as [finišt]. In the above two cases, the process is called voicing and devoicing assimilation.

In the same way, progressive assimilation in Arabic is not rare. Again the best examples of progressive assimilation are:

1. Progressive imālah after non-mustācīf sounds as in / cībād / → [cībēd] (people or servants).

2. progressive vowel harmony as in /al-ḥāmdu lil-Lāhi / →

\[\text{See for example, C. M. Wise, Applied phonetics, 153.}\]
[al-ḥamdu lill-Lāhī] (praise be to Allah).

3. Some emphatic examples as / ṣalāh/ → [ṣalāh]. (prayer).2

4. The / t / of ʾiftaċāla and its derivations. This will be discussed in detail below.

2.2.1.1. ʾIftaċāla:

The form ʾiftaċāla is one of the derived forms (VIII) of the triliteral verb.3 ʾiftaċāla "is formed from the first [form] faċāla by inserting the syllable / t / between the first and the second radicals. The first radical in consequence loses its vowel and it becomes necessary to prefix the prosthetic / i /".4

Reference to ʾiftaċāla should be taken as reference to all its derivatives as well, e.g.:

ʾiftaċāla (past tense),
yaftaċīlu (present tense),
ʾiftaċīl (imperative),
ʾīftīċāl (infinitive noun),
muftaċīl (nomen agentis),
muftaċal (passive participle), and

2 More kinds and examples of progressive assimilation will be provided in other sections.

3 Derived forms of the Arabic trilateral verb are:

1. faċāla 2. faṣaċāla 3. faṣaċāla
4. ʾafṣaċāla 5. ʾtafaṣaċāla 6. ʾtafaṣaċāla
7. infaṣaċāla 8. ʾiftaṣaċāla 9. ʾifṣaṣaċāla
10. istaṣaċāla 11. ʾifṣaṣaḷa 12. ʾifṣaṣaḷa
13. ʾiffaṣaḷa 14. ʾifṣaṇaḷa 15. ʾifṣaṇaḷa

(See W. Wright, A Grammar of the Arabic Language. I., 29.

4 Ibid. I., 41.)
The infix / t / of /iftacala/ and its derivation is written and pronounced as / t / when it is preceded by a /mutbaq/ (completely emphatic sound), that is to say when the first radical in this element is one of the sounds: ِ, َّ, ُّ, and ِّ. These are some examples:

* / ِسباب / ِسباب / (to be patient),
* / ِداَي / ِداَي / (to lie down),
* / ِتالاَ / ِتالاَ / (to inspect), and
* / ِتالاَ / ِتالاَ / (to suffer injustice).

Being stronger, the emphatic sounds change the sound / t / into the nearest emphatic sound / t /. This may be represented in the form:

```
+ consonant. [ - consonant. ]
- continuant [ + continuant ]
- emphatic [ + emphatic ]
- voiced [ + voiced ]
+ coronal [ + coronal ]

[t] / [t]
```

Some modification should be made as below:

a. The sound / t / in / iqtaraba / (to be near) does not change to / t /, although it is preceded by emphatic sound / q /. This is because this sound is a partial emphatic and not a complete emphatic, so our form has to be restated as:
b. The sound /t/ in /'akhlāstu/ (I was sincere) does not become /t̠/ because the word is not in ifta'ala form. Therefore, the preceding form should be modified again to:

\[
\begin{array}{c}
+ \text{consonant} \\
- \text{continuant} \\
- \text{emphatic} \\
- \text{voiced} \\
+ \text{coronal} \\
\end{array}
\rightarrow
\begin{array}{c}
+ \text{consonant} \\
- \text{continuant} \\
+ \text{emphatic} \\
+ \text{voiced} \\
+ \text{coronal} \\
\end{array}
\]

\[
\begin{array}{c}
+ \text{consonant} \\
- \text{continuant} \\
+ \text{emphatic} \\
+ \text{voiced} \\
+ \text{coronal} \\
\end{array}
\]

The following points may also be noted:

1. The assimilation here is obligatory. Speakers are not allowed to pronounce actual /t/.

2. The assimilation is partial. However, complete assimilation may take place with certain sounds. For instance, three of the four examples given above may assume alternative forms:

* istabara \(\rightarrow\) ìṣṣabara / istabara /,
* igtajaca \(\rightarrow\) ìḍṭajaca / ìḍṭajaca /, and
* igtalama \(\rightarrow\) ìḍṭalama / ìṭtalama /.

This may be represented as:
3. Related to the sound /t/ when the first radical in a root in the iftacala form is /ʕ/ yet another alternative is possible:

\[ \text{iṭṭalama} \]
\[ \text{iḍṭalama} \]
\[ \text{iṭṭalama} \]

This variation occurs only with /ʕ/ and appears to violate the general law of assimilation whereby the stronger sound affects the weaker.\(^5\) /ḍ/ is stronger than /t/, but /ʕ/ is weaker, according to Ibn Jinni.\(^6\)

4. There are two further cases of assimilation in the iftacala form, when the first radical is /ḍ/. They are considered exceptions. Both involve the /ḍjɛ/ root:

a. \[ * \text{iḍṭajac} \rightarrow \text{iḍṭajac} \rightarrow \text{iṭṭajac} \]
b. \[ * \text{iḍṭajac} \rightarrow \text{iḍṭajac} \rightarrow \text{iṭṭajac} \]

5. In fact, the sound /t/ following an iṭbāq sound contiguously is not found in the same word except in two cases\(^7\):

---

\(^5\) This law is known in modern linguistics as "The law of the stronger". It is ascribed to a French linguist Maurice Grammond (see A. Umar, *Dirāsat as-sawt al-lughawi*, 319). However, Ibn Jinni stated this law a long time before Grammond.

\(^6\) *al-Munṣir*, 2 / 328. Indeed, Ibn Jinni reports some examples against this rule. One of them is: *fustāt* ← *fustāt*, where /t/ ← /t/ (Sirr ṣinā'at al-irāb, 1 / 157).

\(^7\) I have not come across any other examples.
1. *Iftaːala* and its derivatives.

2. When the pronoun suffixes */tu/,* /ta/,* /ti/,* /tum/,* or */tunna/ are added to a verb ending in an *iṭbāq* letter. These are some examples:

   * `rabaṭ + tu` (I tied),
   * `ḥafaḍ + ta` (you [mas. sg.] kept),
   * `ḥaraṣ + ti` (you [fem. sg.] desired), and
   * `rakaḍ + tum` (you [mas. pl.] run).

   The sound */t/* here is not assimilated to */tʃ/*, */tʃə/,* */š/*,* or */d/. Indeed, Arabic phoneticians report and accept a few examples only in this case which have been assimilated. They are 8:

   1. `fapaṭu bi riflī` (I scratch the ground with my foot) [instead of `fapaṭu`].
   2. `yaballu binicmatin` (I was in an enviable position) [instead of `yabattu`].

   These examples, however, are limited to *samāːf* words, whereas assimilation of */t/* in the *iftaːala* form is *qiyaːfi*.

2.2.1.1.2. `t` → `d`:

   Again the infix */t/* of the form */iftaːala/* and its derivatives is written as well as pronounced as */d/*, its voiced counterpart, after the voiced sounds */d/*,* */dʒ/*,* and */z/*.

   Here are some examples:

   * `idtaːcā` → `iddaːcā` (to claim),
   * `iḍtakara` → `iḍdakara` (to remember), and
   * `iẓtahara` → `izdahara` (developed).

8 *Sirr ṣināːaf al-irāb*, 1 / 231.
To state a form for this type of assimilation, we can say:

\[
\begin{align*}
\text{+ consonant} & \quad \text{- continuant} & \quad \text{+ consonant} \\
\text{- voiced} & \quad \text{+ consonant} & \quad \text{- sonorant} \\
\text{+ coronal} & \quad \text{- emphatic} & \quad \text{- emphatic} \\
\end{align*}
\]

\[
\begin{align*}
t \ (\text{in Iftacala}) & \quad d \\
\end{align*}
\]

In relation to this kind of assimilation, the following points may be stated:

a. The assimilation of /t/ here is also obligatory.

b. It may take the form of complete as well as of partial assimilation; the two may be regarded as free variations:

* iztahara → izdahara / izzahara.
* ištakara → iddakara / iššakara / išdakara.

These free variations are listed according to their frequency of use.

c. Even though the sound /j/ does not have coronal features, some examples of the assimilation of /t/ to /d/ after it are also reported:

\[
\begin{align*}
\text{Ijtama} & \rightarrow \text{idama} (\text{they got together}), \\
\text{Ijtazza} & \rightarrow \text{idazza (to cut off)}. \\
\end{align*}
\]

These examples are samāf and analogical uses are not acceptable.⁹

It is clear from the above scheme that:

1. The complete emphatic ʾitbāq sounds are phonologically stronger than the non-emphatic.

⁹ Sirr ʾānat al-ʾirāb, 1 / 187.
it is almost exclusively the voiced sounds that provoke assimilation here; the only exception is the fricative emphatic /§/, which is voiceless.

<table>
<thead>
<tr>
<th>p.O.A</th>
<th>interdental</th>
<th>alveolar</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.O.A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>stops</td>
<td>vl</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>vd</td>
<td>d</td>
</tr>
<tr>
<td></td>
<td></td>
<td>†</td>
</tr>
<tr>
<td>fricative</td>
<td>vl</td>
<td>ẓ</td>
</tr>
<tr>
<td></td>
<td>vd</td>
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<tr>
<td></td>
<td></td>
<td>z</td>
</tr>
<tr>
<td></td>
<td></td>
<td>‡</td>
</tr>
</tbody>
</table>

2.2.2. Regressive Assimilation

As has been stated earlier, the influential sounds move backwards in regressive assimilation.

When the term assimilation is used with reference to Arabic, what is generally meant is regressive assimilation leading to gemination. However, assimilation is not always exclusively regressive. Arabic linguists and scholars of *tajwīd* discuss and explain progressive as well as regressive assimilation. The assertion of Ibrāhīm Anīs that the latter restrict the discussion of assimilation in their writings to the regressive form is false. *Imālah* and *tařkīm* are examples of progressive as well as regressive assimilation; these two topics are discussed in depth in books in *Qirāţ*.

To understand the reason for the predominance of regressive over progressive assimilation, it is necessary to

---

10 *Fi al-lahajāt al-ārabiyyah*, 70.
consider the syllable structure of the language, which determines the direction of assimilation. The syllable structures in Arabic are six in number:11

1. cv : li (for),
2. cV : lā (no),
3. cvc : man (who?),
4. cvcc : dīrs (molar),
5. cVc : bāb (door),
6. cVcc : mārr (passer-by).

Where (C = consonant), (v = vowel), and (V = long vowel).

We may conclude that:
1. a syllable does not begin with a vowel, whether short or long.
2. a syllable may end with a consonant, a short vowel, or a long vowel.
3. no vowel may be contiguous with another vowel.
4. a syllable may not end with two consonants except in pause.
5. the "onset"12 of the syllable is definitely stronger than its "nucleus"13 and its "coda"14. This is because of the fact that consonants are stronger than vowels.
6. a syllable may be open or closed15.


12 The initial sound or sounds.
13 The central sound or sounds.
14 The final sound or sounds.
15 An open syllable is one ending with a vowel; it is also called a free syllable. A closed syllable, on the other hand, is one ending with a non-vowel.
Thus, the reason why regressive assimilation is more common than progressive is because it usually occurs in the coda of a syllable, which is weaker, as we have seen above. Phonological evidence indicates that syllable-initial position is universally stronger than syllable-final position. Moreover, assimilation in the place of articulation and in voicing is only found reggressively.

Some examples of regressive assimilation in English are:

1. the alveolar fricative sound [z] of "is" and "does" is pronounced further back as alveo-palatal [ ɾ ] before [ ɾ ]:
   
   "is she" [ iʃɾi ].
   
   "does she" [ duʃɾi ].

2. vowels are nasalized before nasals as in the word / pen / → [pɛn].

3. nasals are assimilated, e.g. the alveolar / n / in the prefixes / con- / and / in-/. This sound often becomes the labial / m / before the labials [ p, b, f ] as in / comfort /, compel / and / combine /.

4. the voiced sound / d / becomes voiceless before the voiceless sound / ɾ / as in / width / → [ wɪɾ ].

Examples in Arabic are:

1. The most obvious form of regressive assimilation is that the definite article /al-/ assimilates to about half of all Arabic sounds.

16 Theo Vennemann (1972), 9.
17 Peter Roach, English Phonetics and Phonology, 106.
18 See C. Sloat, Introduction to Phonology, 113.
2. /w/ and /y/ are assimilated to the /t/ of the *iftaçala* form.

3. Nasals are assimilated, especially /n/.

4. Regressive *imālah* also occurs, as in /cālim/ → [cēlim/cēlim].

5. Regressive emphasis may occur, as in /qirṭās/ → [qirṭās].

6. Regressive vowel harmony may occur, as in /al-ḥamdul lil-Lāhi/ → [al-ḥamdi lil-Lāhi].

7. The long vowel /ā/ may be lengthened in pause or when followed by the glottal stop /ʔ/ or a geminated consonant. Some examples are:

   ar-raḥmān → ar-raḥmān (the most merciful),
   ḍāʾīl (saying),
   dābbah (animal).

The first three types of regressive assimilation will be discussed below in detail; the remaining types will be given in other chapters, in order to avoid repetition.

2.2.2.1. The definite article /al-/:

The most commonly used regressive assimilation in Arabic is the sound /l/ of the definite article /al-/. It is assimilated to approximately half of the Arabic sounds, in fact thirteen, which are produced in the middle of the mouth between the dental and alveo-palatal sounds. These letters are called *al-ḥurūf ash-shamsiyyah* (the sun letters). They are: t, ẓ, d, ē, ṣ, ḍ, s, ū, ū, z, r, and n. The rest of the Arabic sounds are called

---

19 See chapter one and chapter (3.2.4.) on lengthening.
al-ḥurūf al-qamarīyyah (the moon letters). There is unanimous agreement among the Arabs on the assimilation of /l/ to the sun letters 20. Compare these two lists:

a. al-
   1. al-‘āb (the father),
   2. al-bāb (the door),
   3. al-jādd (the grandfather),
   4. al-ḥaqq (the right),
   5. al-xāl (the uncle),
   6. al-ṣīlm (the knowledge),
   7. al-yadd (tomorrow),
   8. al-fīl (the elephant),
   9. al-qabr (the grave),
   10. al-kull (all),
   11. al-lughah (the language),
   12. al-mā’ (the water),
   13. al-walad (the child),
   14. al-hind (India), and
   15. al-yawm (today).

b. al- → ac̱ ≠ c̱
   1. * al-tall → at-tall (the hill),
   2. * al-‘āli̇e → a̱-e̱āli̇e (the third),
   3. * al-dār → ad-dār (the house),
   4. * al-ḥahab → aṣ-ḥahab (the gold),
   5. * al-ra’s → ar-ra’s (the head),

b. * al-zar → az-zar (the crops),
7. * al-sāq → as-sāq (the leg),
8. * al-šams → aš-šams (the sun),
9. * al-šidq → aš-šidq (the truth),
10. * al-šdaw → aš-šdaw (the light),
11. * al-šayr → aš-šayr (the bird),
12. * al-šaby → aš-šaby (the gazelle), and

The question here is what feature or features do the shamsī sounds have in common with the sound /I/ which the qamarī sounds do not? The shamsī sounds have either the same position as that of /I/ or one close to it. The sound /I/ is articulated in the alveolar position as also are the following sounds: t, d, θ, s, ş, z, ġ, n, and r. The remaining shamsī sounds are articulated either immediately forward of this position, in the interdental position (e, ĝ, ǧ), or immediately backward in the alveo-palatal position (š). They all share the feature of being coronal.

21 It is interesting to know that the Latin prefix (ad-) has some similarity with the Arabic prefix (al-) in some positions. The (d) of prefix (ad-) shows a tendency to assimilate to nearly every following consonant; the tendency seems strongest when the following consonant is similar in position or manner. Thus particularly in vulgar Latin, examples of ad + t, r, n, l, s, k, g becoming att-, arr-, ann-, all-, ass-, akk-, agg- are common, while the assimilation of ad-m to amm- is less regular. The Latin prefix (ab-) shows no such ready assimilability. (See: J. Hucheson, "Notes on complete consonantal assimilation." Ohio state University working Papers in Linguistics, 14 (1973), p. 62.)

22 This feature is defined by R. Hartmann... (Dictionary of Language and Linguistics, 55): "coronal sounds involve the blade of the tongue being raised, thus dental, alveolar, and palatal sounds are coronal, sounds for
In fact, two of the Arabic alveo-palatal sounds (j, y) are excluded from the shamsī sounds, while their homorganic sound (š) is included, as explained below:

1. The glide (y) is considered a non-coronal sound (coronal).
2. The three alveo-palatal sounds (j, y, š) are described in Arabic grammar as articulated by raising the center of the tongue toward the alveolar ridge. As for ordering the three sounds according to their exact place of articulation, most grammarians list the three as being in the same place, as do Sibawayh, Ibn Jinnī, az-Zamakhsharī, and Ibn Yaṣīsh. However, al-Mubarrid specifies the place more definitely: "After k (moving from back sounds to front) is the place where (š) is articulated; then after that the place where (j) is articulated." Ibn al-Jazārī says something similar: "It has been said that the sound (j) is articulated before the sound (š)... al-Muhdawī said that the sound (š) is articulated immediately after the sound (k)," which means before the sound (j).

Ibn al-Jazārī's statement that the sound (j) is articulated farther back than the sound (š) is supported by M. Brame's statement that phonetic (j) derives from semitic (q). Again it which the blade of the tongue remains in the neutral position... are non-coronals.

23 See for example: C. Sloat, Introduction to Phonology, 91, and R. Hartmann, Dictionary of Language and Linguistics, 55.
25 al-Muqtadab, 1 / 192.
26 an-Nashr, 1 / 200.
is supported by J. Cantineau: "The sound (j) in Arabic is the Semitic (g) with some differences." The approximation of these two sounds may explain why the classical Arabic (j) is pronounced as (g) in some modern dialects such as Egyptian. In addition, many Arabic linguists including al-Khalil, Ibn Jinni, al-Khafaji az-Zamakhshari, Ibn Ya'qib, and Ibn al-Jazar, although not specifying the place of articulation, by listing / j / before / š /, perhaps indicate the same thing.

The exclusion of (j) from the šamsi sounds is to be understood from the above evidence that (j) was not a homorganic sound of (l) nor contiguously adjacent to it:

<table>
<thead>
<tr>
<th>interdental</th>
<th>alveolar</th>
<th>alveo-palatal</th>
<th>palatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>e, ŋ, ę</td>
<td>t, d, _tD</td>
<td>š</td>
<td>j</td>
</tr>
<tr>
<td>s, ʂ, z, ɖ</td>
<td></td>
<td>y</td>
<td></td>
</tr>
<tr>
<td>contiguous</td>
<td>homorganic</td>
<td>contiguous</td>
<td>non-contiguous</td>
</tr>
</tbody>
</table>

But the (j) sound, nevertheless, has the coronal feature. I have not come across anyone who considers a palatal to be non-coronal. On the other hand, both (g) and Arabic (q) are non-coronal.

3. Below is the form of the above mentioned condition:

---

28 Durūs fi 'ilm ašwat al-arabiyyah, 88.
29 See (1.1.1. above).
But again this form is not enough. Compare the following sets:

a. َلِساقا (to stick),
b. *ـِلِـِ~
3. /l/ in the first set is within the word morphologically, while it is in a different word in the second. Therefore, since the phonetic environment does not in itself produce assimilation, a morphological condition (+ definite) should be added to (ʔal) in the previous form. This may be stated as follows:

\[
\begin{bmatrix}
+ \text{consonantal} \\
+ \text{lateral} \\
+ \text{def.}
\end{bmatrix}
\rightarrow
\begin{bmatrix}
+ \text{consonantal} \\
\propto \text{coronal}
\end{bmatrix}
\]

4. Being coronal, the sound /j/ tends to function as a shamsī sound in some modern dialects, including some Iraqi dialects. They have ʔaj-jaysh for ʔal-jaysh (the army). On the other hand, in the modern Fuṣḥā and most Arab dialects, the sound /j/ functions as classical /j/ and not as a shamsī jīm, as A. A. an-Naṣṣir claims.

5. The Arabic grammarians usually include /l/ itself as one of the letters to which the /l/ of the definite article assimilates. This is correct according to their definition of idghām; however, it is a gemination, and not an assimilation, to modern linguists.

6. /ʔa m - /:

The sound /m/ is used in some parts of the south of the Arabian Peninsula in place of the /l/ of the definite article ʔal- → ʔam-. This phenomenon is still heard in the south of

\[\text{References:}\]

31 Sibawayh the Phonologist, Ph.D. (University of York (1985), 125.
Saudi Arabia, and probably in Yemen. It is held by some that it
was a feature of the dialect of Ḥimyar\textsuperscript{32}; others associate it
with Ṭay\textsuperscript{33}, Azd and Ḥudayl\textsuperscript{34}.

The sound /m/ has non-coronal features, unlike /l/. The question arises here as to whether the sound /m/
functions as a shamsi sound with shamsi sounds, and a
qamari sound with qamari sounds in the same way as /l/.
The following reported examples give an indication:

a. qamari:

\begin{itemize}
  \item \textit{альн-бирр} / \textit{럼-бирр} (dutiful),
  \item \textit{альн-جاز} / \textit{럼-جاز} (requital),
  \item \textit{альн-كاب} / \textit{럼-كاب} (floods),
  \item \textit{альн-كيك} / \textit{럼-كيك} (nodes), and
  \item \textit{альн-قامي} / \textit{럼-قامي} (funnel).
\end{itemize}

b. shamsi:

\begin{itemize}
  \item \textit{ASN-سيم} / \textit{럼-سيم} (fasting),
  \item \textit{ASN-سافر} / \textit{럼-سافر} (traveling),
  \item \textit{ASN-صي} / \textit{럼-صي} (sword),
  \item \textit{ASN-سامح} / \textit{럼-سامح} (arrow),
  \item \textit{ASN-سالماح} / \textit{럼-سالماح} (a kind of tree), and
  \item \textit{ASN-ناط} / \textit{럼-ناط} (leather).
\end{itemize}

In fact, we do not have sufficient examples to cover all

\textsuperscript{32} See Ibn Hishām, Sharh qatr an-nadā, 114.
\textsuperscript{33} Sallūm, Dirāsat al-lahajāt al-arabiyyah al-qadimah, 84.
\textsuperscript{34} Y. al-Suwār, Aḥār ikhtilāf al-lahajāt al-arabiyyah li an-naḥw M.A.
Thesis, 244.
sounds; however those provided are sufficient to enable us to reach some conclusions. There appears to be no assimilation of the sound /m/, whether to qamarī or shamsī sounds. On the other hand, Ibn Hishām says that "The definite article /lam/ is used only with moon sounds" and he adds that "May be this is only used in some of the tribes of Tay and not all of them." His statement is not correct, as our list shows.

2.2.2.2. W / Y → / t / in īfta‘ala:

We have seen that when the first radical is one of the ītbaq sounds, the /t/ of īfta‘ala is pronounced as the emphatic sound /t/, and when the first radical in this form is the voiced /d/, /d/, or /z/, it is changed to /d/, its voiced counterpart, by progressive assimilation.

On the other hand, when the first radical in this form is a glide /w/ or y/ regressive rather than progressive assimilation occurs.

When a glide occurs immediately before the /t/ of the īfta‘ala form, it is changed into a sound identical with the following one, which is then geminated. A form for this type of regressive assimilation is:

\[
\begin{array}{c}
\text{- consonantal} \\
\text{- vocalic}
\end{array}
\rightarrow
\begin{array}{c}
\text{+ consonant.} \\
\text{- continuant} \\
\text{- voiced} \\
\text{+ coronal}
\end{array}
\]

\[
\begin{array}{c}
\text{- consonant.} \\
\text{- continuant} \\
\text{- voiced} \\
\text{+ coronal}
\end{array}
\]

\[
\begin{array}{c}
\text{- consonant.} \\
\text{- continuant} \\
\text{- voiced} \\
\text{+ coronal}
\end{array}
\]

\[
\begin{array}{c}
\text{- consonant.} \\
\text{- continuant} \\
\text{- voiced} \\
\text{+ coronal}
\end{array}
\]

Some examples are:

<table>
<thead>
<tr>
<th>Root</th>
<th>translation (v) in deep structure</th>
<th>(v) in surface structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>ṢWL</td>
<td>(to arrive)  *  Ṣiwtašala</td>
<td>Ṣittasala</td>
</tr>
<tr>
<td>ṢQY</td>
<td>(to protect)  *  Ṣiwtaqaya</td>
<td>Ṣittaqā</td>
</tr>
<tr>
<td>ṢSR</td>
<td>(to be easy)  ṢItasara</td>
<td>Ṣittasara</td>
</tr>
<tr>
<td>ṢBS</td>
<td>(to be dry)   ṢItabasa</td>
<td>Ṣittabasa</td>
</tr>
</tbody>
</table>

The qualification that this assimilation takes place in the Ṣifta'ala form is important, since it is determined not only by phonetic but also by morphological considerations. Thus, certain other similar possibilities are excluded, e.g:

<table>
<thead>
<tr>
<th>Root</th>
<th>translation (v) in deep structure</th>
<th>(v) in surface structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>ṢTR</td>
<td>(to be single)  *  Ṣawtara</td>
<td>Ṣattara</td>
</tr>
<tr>
<td>ṢTM</td>
<td>(to lose parents)  Ṣaytama</td>
<td>Ṣattama</td>
</tr>
</tbody>
</table>

In fact, there are some words reported to assimilate /w/ to /t/ in forms other than the Ṣifta'ala 36:

- Ṣawlaja (to insert)  Ṣatlaja
- Ṣawka'ā (to lean)  Ṣatka'ā

Some remarks have to be made here:

1. Regressive assimilation in this environment is not limited to glides only, but it also applies to the voiceless fricative interdental sound /̯/ in one of its two optional ways of assimilation. The other way is a progressive assimilation, both may occur in the Ṣifta'ala form as free variations of the sound /t/ and /̯/ pronounced contiguously:

   a. ̯ → t /t ( * Ṣifta'ala)

36 al-Munšīl, 1 / 225.
b.  $t (+ \text{iftaćala}) \rightarrow \emptyset / \emptyset$

The triangular interdental fricative sounds in Arabic behave quite differently from one another as first radical in the iftaćala form; this is phonetically and phonologically not difficult to explain:

The general form for these combinations is:

$t (+ \text{iftaćala}) \rightarrow \alpha \text{ emphatic} / \quad \alpha \text{ emphatic}$

$\quad \text{B voiced} / \quad \text{B voiced}$

2. The glide / w / occurs much more commonly than / y / in Arabic as a first radical.

3. The Arabic grammarians give one further condition for / w / and / y / changing to / t /, namely that they occur as original radicals and not as the result of the glottal stop changing to a glide / $\delta \rightarrow y / w /$. Otherwise, they do not change before the / t / of iftaćala. Here are some examples:

`ṣamānah (reliability)` `ṣittumina` `ṣūtumina` `ṣuttumina`

`ṣalīfa (to be familiar)` `ṣīṭilāf` `ṣīṭilāf` `ṣīṭṭilāf`\footnote{See for example: an-Najjār, \textit{Diya' as-salik}, 4 / 292.}
However, phonologically there is no need for this condition, since what we have here is not glide sounds but their corresponding long vowels / ū and ī /. The Arabic linguists seem to speak about the two different things as if they are the same, because they are written in the same way.

Furthermore, this condition has some exceptions; for example, the word / ṭitazara / is sometimes pronounced / ṭittazara / (to wear a loincloth).

4. The form in this type of assimilation is used by most Arabs. Some Arab dialects, however, do not have any such type of assimilation\(^3\); instead they assimilate / w / and / y / to the vowels that precede them, so that they are pronounced as the corresponding long vowels in progressive assimilation.

Here are some examples:

- a. wazana (to weight) \(\rightarrow\) yātazinu
  yabisa (to dry) \(\rightarrow\) yātabisu
- b. wazana mītazin
  yabisa mītabis
- c. wazana ṭītazana
  yabisa ṭītabasa

\(^3\) Ibn Jinni designates the most common form (the changing of the glide to t) as belonging to Hijāzi dialect in his book *Sirr šūrat al- īrāb*, 1 / 148, and the least common form (the changing of the glide to a long vowel) as belonging to other Hijāzi dialects, in his book *al-Munsīf*, 1 / 228. It is to be understood that the majority of Hijāzis speak the first, while only some of them (probably not too many) speak the second. This is supported by K. al-Azhari in *Sharḥ at-tashrīḥ alā at-tawdīh* 2 / 391.
2.2.2.3. Nasal Assimilation:

Nasals are speech sounds pronounced with lowering of the velum so that the air is allowed to escape through the nasal cavity. The air with nasal consonants escapes only through the nasal cavity, while it escapes through both nose and mouth cavities with nasal vowels. "They (nasals) are produced exactly like stops, except that the velic is open".\(^{39}\)

Many languages, including Arabic and English have only nasal consonants, while some others, including French, have both nasal consonants and nasal vowels, e.g. "French 'bon' [bɔ̃] (good), and vin [vɛ̃] (wine)".\(^{40}\)

In Arabic, there are two nasal consonants: the bilabial nasal /m/ and the apico-alveolar nasal /n/. Indeed, Arabic linguists list two different /n's/: the apico-alveolar /n/ in which the tongue has strong involvement, and the khayshūmiyyah /n/ which is almost pronounced entirely from the nose with the tongue having less involvement.

Our discussion in this chapter will be limited to /n/ sound for the following reasons:

a. it occurs more frequently because it is used as a phoneme as well as tanwin (a definiteness marker).

b. it assimilates regressively and in qiyāsī manner to most Arabic sounds.

c. it is ṣaghannu min al-mīm (it has more nasality than /m/).

d. it is one of the best examples of regressive assimilation in Arabic.

\(^{39}\) C. Hockett, *A course in Modern Linguistics*, 73.

\(^{40}\) R. Hartmann, *Dictionary of Language and Linguistics*, 148.
An-nūn as-sākinah (the vowelless /n/) is also called by the Arabs an-nūn al-khāfīfah or al-khāfīyyah. It is followed immediately by a consonant and not a vowel. It is considered as a secondary approved sound (as we have seen earlier). This sound has been discussed in depth by the Arabs especially in the science of *tajwīd*.

The sound /n/ assimilates completely or partially to 22 of 28 consonants in Arabic when they follow it, either within a word or across word and morpheme boundaries. It is pronounced in its original position before six back sounds. The two status of the sound /n/ are:

2.2.2.3.1.1. **İdhām** (assimilation):

a. complete regressive assimilation:

1. (n + l, r):

İdhām bi ghayr ghunnah (complete assimilation without retaining nasality in the pronunciation). When /n/ precedes its homorganic liquid sounds /l/ and /r/, it changes completely to /l/ or /r/ respectively. /min rabbikum/ is pronounced as [mirrabbikum] (from your lord), /ghafūrun raḥīm/ as [ghafūrurraḥīm] ((Allah) is oft-forgiving, most merciful), /min ladunnā/ as [milladunnā] (from us), and /fasalāmun laka/ as [fasalāmul-laka] (and peace be unto you).

41 For a chapter on this topic see an-Nashr, 2 / 222-228.
The liquids /l/ and /r/ are not the same in this case according to some Qur'anic Readers. The sound /n/ when assimilated to /r/ is not written as /r/ but remains as /n/. When, however, /n/ is assimilated to /l/, it is also sometimes written as /l/. This occurs in certain circumstances where /an (that), and /in (if) are combined with the negative or prohibitive particles /lá/, /lan/, and /lam/, and the conditional particle /law/. The Qur'ān has a considerable number of such sequences in its text. In some cases, /n/ remains as it is, in others it is written as /l/. Here are some examples:

1. Separated:
   a. /án + lá/: /án lá yaqūlū / (that they would not ascribe to Allah) [Q. 7:163].
   b. /in + lam/: /fa /in lam tafsälū / (if you do not do) [Q.2:24].

2. Combined:
   a. /án + lá/: /Allā tafsaw / (you may not transgress (due) balance). [Q. 55:8].
   b. /in + lam/: /fa /illam yastajibû lakum / (if they answer not you). [Q. 11:14].

Comparing the examples in (1) with those in (2), I find it difficult to see the phonetic reason behind the differences in the way of writing /l + n/ as geminated /ll/ in some cases and
not in others. I mention the way of writing here, even though it does not fall within the scope of this thesis, because some scholars of tajwīd, who retain nasality in assimilating /n/ to /l/ have decided, and advised readers, not to retain nasality if /n/ is not separated from /l/ in script. The assimilating of /n/ to /l/ itself in such cases is sometimes not practiced by non-trained readers, especially when /n/ is written in the script.

Moreover, tajwīd scholars themselves are not in agreement on this point, some of them retain nasality when assimilating /n/ to /l/, but the majority do not. Those who do retain nasality here do not always do so. Retaining nasality here is ḥān (incorrect) to Makkī Ibn Abī Ṭālib, but the evidence is against this attitude. Here is an example of retained nasality as cited by Ibn al-Jazari:

\[\text{faq n lám taf cālū} \rightarrow \text{fa ʾillām taf cālū} \rightarrow \text{fa ʾillām taf cālū} \rightarrow \text{fa ṣān lā yaqufū} \rightarrow \text{ṣālā yaqufū} \rightarrow \text{ṣālā yaqufū.}\]

The following table shows us how often /n/ followed by /l/ occurs in the Qurʾān:

\[\text{an-Nashr, 2/28.}\]
\[\text{In fact, according to many scholars, the qurrā all agree on the reading without retaining nasality with both /l/ and /r/ (see at-Taysir, 45, al-Kashf an wujūh al-qirāt as-ṣabr, 1/162, and Ibrāz al-maʿānī min birz al-amānī, 201).}\]
\[\text{al-Kashf an wujūh al-qirāt as-ṣabr, 1/162.}\]
\[\text{an-Nashr, 2/28.}\]
the occurrence of /n/ + /l/ in the Qur'ān

<table>
<thead>
<tr>
<th>Items</th>
<th>Separated</th>
<th>Combined</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ʿin + lam</td>
<td>29</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>ʿan + lam</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ʿin + lā</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ʿan + lā</td>
<td>11</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>ʿan + lān</td>
<td>11</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>ʿan + law</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>man + lā</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>man + lam</td>
<td>10</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>man + law</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>kāʾan + lam</td>
<td>8</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>others</td>
<td>43</td>
<td>0</td>
<td>43</td>
</tr>
<tr>
<td>total</td>
<td>130</td>
<td>13</td>
<td>143</td>
</tr>
</tbody>
</table>

It is interesting to see that the Qur'ānic text in our hands nowadays is just as it was described by ad-Dānī 46, and Ibn al-Jazari.47

This type of assimilation (complete regressive assimilation) is found only across word boundaries as in the above mentioned examples. Indeed, there are no such combinations of /n + l/ or /n + r/ in one word. To quote Sibawayh' statement: "We do not know of the occurrence of voweless /n/ before /r/ or /l/ in the same word; it would be difficult to pronounce it without assimilation, and the result would be confused with similar geminated words when pronounced with assimilation."48

46 al-Muqni' fi rasm maṣāḥif al-ṣamār, 73-75.
47 an-Nashr, 2 / 28-29.
48 al-Kitāb, 2 / 416.
2. \[ n + m \]:

The sound /n/ is replaced by /m/ when it occurs at the end of a word and the following word begins with /m/; this is complete regressive assimilation:\(^{49}\)

\[
\begin{bmatrix}
+ \text{consonantal} \\
+ \text{nasal} \\
+ \text{coronal}
\end{bmatrix}
\rightarrow
\begin{bmatrix}
+ \text{consonantal} \\
+ \text{nasal} \\
+ \text{interior}
\end{bmatrix}
\bigg/(\quad)
\begin{bmatrix}
+ \text{consonantal} \\
+ \text{nasal} \\
+ \text{interior}
\end{bmatrix}
\bigg/R
\begin{bmatrix}
+ \text{consonantal} \\
+ \text{nasal} \\
+ \text{interior}
\end{bmatrix}
\]

\((\text{optional})\)

/\text{min mā razaqakum} \rightarrow [\text{mimmā razaqakum}]\) (from what Allah has bestowed on you),

/\text{qawlun macrūfūn} \rightarrow [\text{qawllum macrūfun}]\) (a just statement).

Within word boundaries, such assimilation is rare, and it permissible only when no semantic confusion is possible:

/\text{jinmahā} /\text{immahā} (to be effaced). It is not permissible to assimilate in a word such as /\text{ghunm} / (benefit) \rightarrow *\text{ghumm}, since semantic confusion would be caused thereby. In the Qur'ān, there is no such combination within word

\(^{49}\) An alternative form may be:

\[
\begin{bmatrix}
+ \text{consonantal} \\
+ \text{nasal} \\
+ \text{coronal}
\end{bmatrix}
\rightarrow
\begin{bmatrix}
+ \text{consonantal} \\
+ \text{nasal} \\
+ \text{interior}
\end{bmatrix}
\bigg/(\quad)
\begin{bmatrix}
+ \text{consonantal} \\
+ \text{nasal} \\
+ \text{interior}
\end{bmatrix}
\bigg/R
\begin{bmatrix}
+ \text{consonantal} \\
+ \text{nasal} \\
+ \text{interior}
\end{bmatrix}
\]

\((\text{optional})\)
b. Partial Assimilation:

1. n + y, w: Leading to gemination:

Before the glides /y or w/, again across word boundaries, /n/ shifts so as to be pronounced as /y or w/ respectively, but with nasality retained, as partial regressive assimilation. Some examples are:

/ma'ayqul/ → [ma'yqul] (who says),
/wujuhun yawma'idin/ → [wujuhu'yawma'idin] (faces that day),
/min waq/ → [miwawaq] (any defender),
/wa zaytun wa naklan/ → [wa zaytunawwa naklan] (and olives and dates).

Again /n/ cannot be assimilated to these two sounds within the same word, for semantic reasons. Thus, for example there is no assimilation in: /siinwaan/ (two of a pair), /qinwaan/ (bunches of dates), /dunya/ (this life), and /bunyaan/ (buildings). This may be represented as follows:

\[
\begin{array}{c|c}
\text{+ consonantal} & \text{- consonantal} \\
\text{+ nasal} & \text{- vocalic} \\
\text{+ coronal} & \text{+ nasal} \\
\hline
n & \tilde{y}, \tilde{w}
\end{array}
\]

50 an-Nashr, 2/25.
51 Khalaf (a Qur'anic reader) assimilated completely without nasality retained. (see ad-Dani, at-Taysir fi al-qirâ'at as-sabâ', 45.)
2. al-Iqlāb 52 [n + b] (inversion):

The second type of partial assimilation of final /-n/ is what the qurrāʾ call Iqlāb. Before the bilabial /b/, /n/ is pronounced as a bilabial /m/.

\[ \text{inanbāʾ} \rightarrow \text{ambāʾ} \] (news or stories),
\[ \text{min bāḍ} \rightarrow \text{mim bāḍ} \] (after),
\[ \text{samīcum bāṣīr} \rightarrow \text{samīcum bāṣīr} \] ((Allah) who hears and sees (all things)).

\[ n \rightarrow + \text{bilabial} /m+ + \text{bilabial (b)}. \]

This type of assimilation differs from the two previous types in that it occurs within word boundaries as well as across them 53.

In English the labial or labio-dental sound /f/ has the same effect, while in Arabic it does not. The English prefix (con-) becomes (com-) before both bilabials /b, p 54/ and the labio-dental /f/ 55:

\[ * \text{conbine} \rightarrow \text{combine} /, \]
\[ * \text{compel} \rightarrow \text{compel} /, \]
\[ * \text{comfort} \rightarrow \text{comfort} / \]

\[ n / \text{becomes a bilabial before a bilabial stop, English resembles Arabic in this type of assimilation; the phrase "ten} \]

52 See (3. ikhfa) below.

53 I have not come across any Arabic word with the combination of /m + b/ in the deep structure; I would therefore, assume that this is the reason why assimilation is permitted within word boundaries with /n + b/ as opposed to /n + y, w, / and n + m/, since no semantic confusion can arise.

54 Of course, there is no voiceless bilabial sound /p/ in Arabic.

55 /n/ before /f/ will be discussed in the following paragraph.

56 See C. Sloat, Introduction to Phonology, 113.
percent" tends to be pronounced as [tem percent].

3. *Ikhfā* (hiding):

The majority of obstruant sounds affect the manner and position of articulation of the apico-alveolar nasal /n/. These sounds are:

1. labio-dental : f
2. inter-dental : θ, χ, and ɣ.
3. alveolar : t, d, ɣ, s, z, and θ.
4. alveo-palatal : š
5. palatal : j
6. velar : k
7. uvular : q

The position of the apico-alveolar /n/ moves forward when it occurs contiguously before the front sounds among these, likewise it moves backwards before the back sounds. On the other hand, as we have seen in *iqlāb* in the previous paragraph, the sound /n/ becomes bilabial when it occurs before /b/, changing position only, without changing the manner of articulation. Indeed, *iqlāb* is a part of *ikhfā*, since the homorganic of /b/ is /m/; there is in fact no need to consider *iqlāb* as a separate category, and /b/ may be included among the sounds of *ikhfā*. To recapitulate we may say that the sounds of *ikhfā* begin with the extreme front obstruants and proceed backwards to the uvular; the only excluded obstruant sounds are the ḥurūf al-ḥalq (the six back sounds namely : ṣ, h, c, ḥ, y, and x).

/n/ with its homorganic sounds, namely the alveolars t,
d, s, ş, z, and ẓ, does not change its position, but is further nasalized by lowering the velic, and the homorganic sounds take on some of its features. A form for *ikhfā* may be represented as:

\[
\left[ + \text{consonantal} \right] \quad \rightarrow \quad \left[ \text{owel position} / \right] \quad \left[ + \text{obstruant} \right]
\]

Some examples are:

\[
\begin{align*}
\text{f} : & \quad \text{al-} \text{anfāl} / \rightarrow [\text{al-} \text{anfāl}] \text{ (the spoils of war).} \\
\text{e} : & \quad \text{maneūran} / \rightarrow [\text{mañēūran}] \text{ (scattered).} \\
\text{ ş} : & \quad \text{munṣūr} / \rightarrow [\text{muñṣūr}] \text{ (warner).} \\
\text{ ş} : & \quad \text{inṣūrū} / \rightarrow [\text{inṣūrū}] \text{ (see (pl)).} \\
\text{t} : & \quad \text{rantum} / \rightarrow [\text{rantum}] \text{ (you (pl)).} \\
\text{t} : & \quad \text{yanṭiqūn} / \rightarrow [\text{yanṭiqūn}] \text{ (they speak).} \\
\text{d} : & \quad \text{andādan} / \rightarrow [\text{anṭādan}] \text{ (equals)} \\
\text{s} : & \quad \text{ansānihu} / \rightarrow [\text{anṣānihu}] \text{ (makes me forget it).} \\
\text{ ş} : & \quad \text{yanṣūrūkum} / \rightarrow [\text{yanṣūrūkum}] \text{ (he) help you (pl)).} \\
\text{z} : & \quad \text{anzala} / \rightarrow [\text{anṭzala}] \text{ (he sent down).} \\
\text{d} : & \quad \text{manṣūd} / \rightarrow [\text{mañṣūd}] \text{ (arranged in layer).} \\
\text{s} : & \quad \text{manṣūrā} / \rightarrow [\text{mañṣūrā}] \text{ (spread).} \\
\text{j} : & \quad \text{anṭajūnākum} / \rightarrow [\text{anṭajūnākum}] \text{ (we saved you (pl)).} \\
\text{k} : & \quad \text{minqum} / \rightarrow [\text{minqum}] \text{ (from you (pl)).} \\
\text{q} : & \quad \text{yanqalibūn} / \rightarrow [\text{yanṭqalibūn}] \text{ (they (pl) turn over).}
\end{align*}
\]

The purity of the / n / depends on how far the following sound is from / n / in its place of articulation. It becomes less pure with homorganic and close sounds.57
4. IGHAR (dissimilation):

The sound /n/ assimilates to most Arabic consonants completely or partially. The only consonants that /n/ is pronounced purely with are ُهَلْقٍ (guttural) consonants: glottal ُو, ُه, pharyngeal ُ،, ُع, uvular ُؤ, ُي, the six sounds furthest back. In such a phonetic environment, the sound /n/ is not assimilated either within a word or across word boundaries as in the following examples:

a. /manjan/ (distant place),
   /man jananta?/ (who are you?),

b. /manhaj/ (curriculum),
   /man huwa?/ (who is he?),

c. /yanhitun/ (they hew),
   /calimun hakim/ ((Allah) all-knowing all-wise),

d. /jancamta/ (thon (Allah) hast bestowed),
   /man cindaka?/ (who is with you?),

e. /al-munxaniqah/ (that which hath been killed by strangling),
   /man xaraja?/ (who went out?),

f. /fa sa yunyi'duna/ (then will they wag their heads),
   /min yayrikum/ (from other than you (pl)).

Some qurrā', including Abū Ja'far, assimilate /n/ homorganically to the nearest ُهَلْقٍ sounds [ؤ, and ُي] as ُكُفَأٌ, but the majority of qurrā' do not 58. Sibawayh also mentions this kind of assimilation, giving munkhal (sieve) as an

57 an-Nashr, 2 / 27.
58 See for example, an-Nashr, 2 / 22-23.
Example 59. The pronunciation of the sound /n/ is purest with the farthest ḥalqī sounds /?/, h/, less so with the middle sounds /h, c/, and least so with the nearest sounds /x, y/.

To sum up, the sound /n/:
1. loses its nasality before liquids /l, r/,
2. loses its place of articulation before /y, w/ and ikhfa' sounds,
3. loses both its nasality and place of articulation before /m/,
4. retains nasality and place of articulation before ḥalqī sounds.

This scheme may be represented as:

\[ n \rightarrow + \text{liquid} /- + \text{liquid}. \]
\[ n \rightarrow + \text{bilabial} /- + \text{bilabial}. \]
\[ n \rightarrow \alpha \text{place of articulation} /- + \alpha \text{place of articulation (} \text{herited).} \]
\[ n \rightarrow \text{remains purely} /- + \text{herited).} \]

Nasal assimilation may occur within word boundaries, as well as across word boundaries except in idghām (assimilating /n/ to sonorant sounds) as in the table below:

<table>
<thead>
<tr>
<th>Environment</th>
<th>Idghām</th>
<th>Iqlāb</th>
<th>Ikhfā?</th>
<th>Iṯḥār</th>
</tr>
</thead>
<tbody>
<tr>
<td>within word boundary</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>across word boundary</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
</table>

+ assimilated
- not assimilated

59 al-Kitāb, 2/423.
The assimilation of the homorganic \( n \), and \( l \) is quite similar: a comparison gives the following tables:

### Comparison between \( n \) and \( l \)

|     | b | f | Ø | ŋ | t | ŋ | d | s | ŋ | z | ñ | j | k | q | ʢ | x | h | c | h | ? |
| \( l \) | - | - | + | + | + | + | + | + | + | - | - | - | - | - | - | - | - | - | - | - | - |
| \( n \) | + | + | + | + | + | + | + | + | + | + | + | + | + | - | - | - | - | - | - | - | - | - |

+ assimilated  
- not assimilated

### Comparison between \( l \) and \( n \) + sonorant

<table>
<thead>
<tr>
<th>( l, n )</th>
<th>m</th>
<th>n</th>
<th>r</th>
<th>l</th>
<th>w</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) complete</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(n) comp. or partial</td>
<td>+</td>
<td>0</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

+ assimilated  
- not assimilated

The assimilation of the sound \( n \) to following non-\( ḥaļq \) sounds, whether completely or partially, is considered optional, that is to say, a speaker or a reader may ignore it if he wishes; on the other hand, it is compulsory in the reciting of the Qur'ān according to many scholars of \( tajwīd \).

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60 The assimilation is complete for \( l \), while for \( n \) it may be either partial or complete.
2.2.3. Coalescent Assimilation:

We have seen earlier that if the first sound in such a combination influences the second, assimilation is called progressive. If the opposite happens, the assimilation is called regressive. In a third type of assimilation, the influence operates in both directions. This is called "coalescent" or "reciprocal" assimilation.

In fact, this term is defined variously by different linguists:

1. "A sequence of two sounds coalesces and gives place to a single new sound different from either of the original sounds".61 This definition may be represented as: \( C_1 C_2 \rightarrow C_3 \) The example given to illustrate it is: / don't / [ duct ] and / you / [ yʊ ] \( \rightarrow [ dɔnt\text{u} ] \). This really shows a normal progressive assimilation, which may be represented as: \( C_1 C_2 \rightarrow C_1 C_3 \). This definition is supported by C. M. Wise: "Both sounds disappear as such and a third sound emerges in their place".62

2. J. Hutcheson gives as a form for coalescent assimilation:

\( C_1 C_2 \rightarrow C_2 C_3 \) 63 The two sounds disappear and a geminated sound is put into their place. An Arabic example to illustrate this is:

/ ˈjɪtalama / \( \rightarrow [ ˈʃtələma ] \) (did unjustly).

63 See his Ph. D. Thesis, *A Natural History of Complete Consonantal Assimilation*, The Ohio State University (1973), and see also his article "Notes on Complete Consonantal Assimilation" *The Ohio State University Working Papers in Linguistics* 14 (1973), 58-65.
3. R. Hartmann and F. Stork give as an example of coalescent assimilation: /seven/ → [sebm]⁶⁴, in which both sounds disappear and are replaced by others. It may be represented as: C₁ C₂ → C₃ C₄.

4. I prefer a definition which combines the latter two definitions "where both sounds, the assimilated and the conditioning, affect each other to result either in one geminated sound, or more rarely, in two sounds different from the originals.

Some examples of Arabic coalescent assimilation:

1. Vowelless /n/ in idghām bi ghunnah assimilating /n/ to the following sound with nasalization (see above):

   / yan yaṭṭi / → [ya'ya'ya'ya'] (to come).

   / min waq / → [miw'w'w'q] (any protector).

2. Ikhfā, the status of the vowelless /n/ when followed by fifteen sounds (see above):

   / ūn kuntum / → [ūn'kuntum] (if you were).

2.3. Complete vs. Partial assimilation

Complete assimilation is used to describe the type of assimilation in which the assimilated sounds become totally identical in all features with the conditioning sounds. It takes one of the following forms:

1. \( C_1 C_2 \rightarrow C_1 C_1 \),
2. \( C_1 C_2 \rightarrow C_2 C_2 \), or
3. \( C_1 C_2 \rightarrow C_3 C_3 \).

Partial assimilation on the other hand, indicates that a sound becomes similar but not identical in all features with a neighboring sound. It takes one of the following forms:

1. \( C_1 C_2 \rightarrow C_1 C_3 \),
2. \( C_1 C_2 \rightarrow C_2 C_3 \), or
3. \( C_1 C_2 \rightarrow C_3 C_4 \).

Complete assimilation is sometimes called total assimilation or equalization, while partial assimilation is sometimes called accommodation.

The Arabs usually differentiate between complete and partial assimilation in the following manner. If the two sounds become identical so as to be geminated, then the assimilation is complete, whereas if there is no possibility of gemination, the assimilation is partial. However, the third form of the complete assimilation above is not included by many of them, so they do not consider \( al-idghām bi ghunnah \) (assimilating /\( n/ \) to /\( y, w/ \) ) as complete assimilation.\(^1\) This is because the sound /\( n/ \) does not assimilate completely to these sounds, as its

\(^1\) See for ex. \( an-Nashr , 2/27 \).
nasality remains:

\[ \text{man yacmal} \rightarrow \text{may' yacmal} \] (whoever works).

\[ \text{min wāq} \rightarrow \text{miwāq} \] (any protection).

Likewise when a strong sound assimilates to a weaker one a partial assimilation, occurs with one or more features of the assimilated sound remaining, as in the following examples:

\[ \text{baṣaṭta} \rightarrow \text{baṣatta} \] (you stretch).

\[ \text{aḥaṭtu} \rightarrow \text{aḥattu} ^2 \] (I comprehend).

However, assimilation in these examples is complete according to the third possible form of the complete assimilation (\( C_1 C_2 \rightarrow C_3 C_3 \)).

Indeed, most of the Arabic linguists do not call partial assimilation \textit{idghām} because \textit{idghām} to them is complete assimilation, leading to gemination.

The most frequent example of complete assimilation is the definite article /\textit{al-}\/ with \textit{shamsī} sounds.

\textit{Inmālah} and /\textit{t}/ of \textit{iftacala} are some examples of partial assimilation.

The Arabic linguists call complete assimilation \textit{al-idghām al-kāmil} and they call partial assimilation \textit{al-idghām an-nāqiṣ}. Ibn Jinnī gives this division more attention than the other linguists. He calls complete assimilation \textit{al-idghām al-akbar}, and partial assimilation \textit{al-idghām al-ṣaghār}\(^3\). His terms should not be confused with the normal terms of contiguous and non-contiguous assimilation \textit{al-idghām ʿaṣ-ṣaghīr} and \textit{al-idghām al-kabīr} respectively.

\(^2\) \textit{an-Nashr}, 1 / 220.

\(^3\) \textit{at-Taṣrīf al-mulūkī}, 97, and \textit{al-Khaṣāṣīs}, 2 / 141.
Complete assimilation in Arabic is usually compulsory. On the other hand, partial assimilation is usually optional, according to Arabic linguists; it is however obligatory in the reading of the Qur'ān, according to some scholars of tajwīd.
2. 4. Distant Assimilation:

Concerning the proximity of the assimilated sounds to the conditioning sounds, assimilation is divided into two types. When the two sounds involved are immediately adjacent, assimilation is called contiguous assimilation, or sometimes contact assimilation. On the other hand, when the two sounds involved are separated by one or more other sounds, the assimilation is called non-contiguous assimilation, incontiguous assimilation, dilated assimilation, remote assimilation, or distant assimilation. Distant assimilation is much less frequent than contiguous assimilation. Therefore whenever the word "assimilation" is used without any modification, contiguous assimilation is mostly meant. For this reason, our discussion in this sub-chapter will be limited to distant assimilation.

Distant assimilation has been discussed thoroughly by both Arabic linguists and scholars of tajwîd, under different headings, of which the following are the most common:

1. Vowel Harmony:

Vowel harmony is the most common type of distant assimilation. There is no contiguous vowel harmony in Arabic. The separating sounds may be one or more. The word / ˈimraː / (a man) with nunation declines:

ˈimruːn (nominative) as in: hādā mruːn (this is a man),
ˈimraːn (accusative) as in: raʿaytu mraːn (I saw a man),
ˈimriːn (genitive) as in: mini mriːn (from a man).
Some other examples are:

\(\text{`uqtul} \) "imperative" (kill),

\(\text{`idrib} \) "imperative" (hit), and

\(\text{nahar} \) (river).  

2. **Imālah:**

Imālah, which is the raising of (a / ā) to become near (i / i) in certain circumstances, is considered as a distant assimilation in all its types. This is due to the fact that a / ā cannot be followed or preceded contiguously by / i / or / i /:

- i + a / ā,
- a / ā + i,
- i + a / ā,
- a / ā + i.

However there are some exceptions where imālah may occur, in fact, as contiguous assimilation, such as when the low vowels (a / ā) are followed or preceded by the glide / y /. Some examples of imālah are:

\(\text{mafātiḥ} \rightarrow \text{mafētiḥ} \) (keys),

\(\text{al-`alāmin} \rightarrow \text{al-`ēlamīn} \) (the worlds),

\(\text{kayyāl} \rightarrow \text{kayyēl} \) (the one who weighs).

Sometimes, more than one phoneme separates (a / ā) from the conditioning sound, as in the second example above, and also in:

\(\text{yaḍribahā} \rightarrow \text{yaḍribahē} \) (he hits her).

---

1 For more detail on vowel harmony see 2.6.2.2. below.

2 al-Kitāb, 2 / 262.

3 For more detail on imālah, see 2.6.2.1.below.
3. Emphasis:

Emphasis is a strong feature that affects neighboring sounds both contiguously and non-contiguously. Again the separating sound between the assimilated and the conditioning sounds may be one or more. Some examples are:

1. /ʿaqaṣātu/ (more correct). Pronounced before the emphatic sound /t/, the sound /s/ may become a partial emphatic /s/, between /s/ and /ṣ/, or may become a complete emphatic /ṣ/.

2. /lasallāṭahum/ (has given them power over..) The same as the above may be said about /s/ here.\(^4\)

4. al-Idghām al-Kabīr:

*al-Idghām al-kabīr* (non-contiguous assimilation), is contrasted with *al-idghām ʾaṣ-ṣaghīr* (contiguous assimilation). The difference between the two types is that in the latter the assimilated sound is *sākin* (unvowelled) while in the former, the assimilated sound is *mutaḥarrik* (vowelled). The short vowel here is dropped before the assimilation process takes place; as a result *al-Idghām al-kabīr* and *al-Idghām ʾaṣ-ṣaghīr* are phonologically the same.

Arabic grammarians do not discuss this kind of assimilation a great deal; on the other hand, almost all scholars of *tajwīd* have a separate chapter on *al-Idghām al-kabīr*.

This type of *idghām* is mostly associated with the reader Abū ʿAmr Ibn al-ʿAlāʾ; he is not however the only reader to favor assimilation in it. Ḥamzah and al-Kisāʾī are reported to

\(^4\) For more detail on emphatic sounds see 2.6.3.1. below.
have assimilated in this case too. On the other hand, Nāfiʿ, Ibn Kathīr, and ʻĀṣim preferred not to assimilate in \textit{al-\textit{idghām}} \textit{al-kabīr}. Ibn ʻĀmir sometimes assimilated and other times dissimilated.⁵

\textit{al-\textit{idghām}} \textit{aṣ-ṣaghir} occurs in both environments, within and across morpheme and word boundaries, while \textit{al-\textit{idghām}} \textit{al-kabīr} occurs across word boundaries, with a few cases where it occurs across morpheme boundaries. These cases are:

a. Pure gemination:

In which the short vowel between the two identical sounds is deleted. These examples are reported:

1. \textit{mā salakakum} (what led you (pl) into (hell-fire)),
   \textit{mā salakkum} : vowel deletion then gemination,
2. \textit{manāsikakum} (your (pl) holy rites),
   \textit{manāsikkum} : vowel deletion then gemination,
3. \textit{lā ta\textsuperscript{3}manunā} (… not trust us),
   \textit{lā ta\textsuperscript{3}mannā} : vowel deletion then gemination,
4. \textit{makkana\textsuperscript{3}nī} (… established me),
   \textit{makkannī} : vowel deletion then gemination.

However the \textit{qurrā} do not assimilate in certain other similar situations, for example:

1. \textit{bi shirkikum} (… your partnership),
   * \textit{bi shirkkum},
2. \textit{jibāhuhum} (their foreheads),
   * \textit{jibāhhum}.

⁵ Ibn Mujāhid, \textit{Kitāb as-	extit{sabā}h fī al-qirā\textit{āt}}, 113-125.
It is difficult to explain why Abū Qāmīr deleted the short vowel and geminated the identical sounds in some cases but not in other similar cases which seem to be phonologically the same. He was possibly simply following the practice of his teachers in such cases. He assimilates when the separating vowel is /a/ only.

b. Deletion, assimilation, then gemination:

Abū Qāmīr limits the assimilation of sounds to each other after the deletion of the short vowel to one sound, namely the uvular /q/ when pronounced before the second person plural masculine pronoun *kum*. Some qurrāʾ also include in this *kunna*, the feminine pronoun, on condition that there is a vowel before the assimilated sound /q/. Some examples are

1. *khalaqakum* (Allāh created you (pl.)),
   *khalaqakum*: vowel deletion,
   *khalakkum*: assimilation,
   *khalakkum*: gemination.

2. *razaqakum* (Allāh gave you (pl.)),
   *razaqakum*: vowel deletion,
   *razakkum*: assimilation,
   *razakkum*: gemination.

But if the sound /q/ is preceded by sukkūn, whether with a consonant, a glide, or a long vowel, Abū Qāmīr does not delete the short vowel nor does he assimilate the sounds.

*mīthāqakum* (your (pl.) covenant),

* mithākkum,
  lawqakum (above you (mas. pl.)),
* fawkkum,
  wa liyuḏīqakum (giving you a taste),
* wa liyuḏīkkum.

Neither does he do so if the pronoun following / q / is not plural, e.g.

  khalaqaka ((Allāh) created you (mas. sg.)),
  * khalakka.

On the other hand, Abū cAmr was in the habit of deleting the final vowel and geminating the two sounds (the final consonant of the first word and the first of the second word) when they were identical and assimilating the first to the second when they were similar. The Arabs call the first case tamāthul, where two sounds are identical in both place and manner of articulation; they call the second either tajānus, where they are identical in place of articulation but not in manner of articulation, or taqārub, where they are merely similar in either place or manner of articulation or in both.7 The following examples illustrate this:

  la ḥahaba bi samcihim: mutamāthil (... take away their faculty of hearing),
  wa man tāba mačaka mutajānis (and those who with you turn),
  yurīdu əawāb mutaqārib (..desires a reward...).

7 See for example an-Nashr,1 / 278.
The qurrā’ make four conditions for allowing this kind of assimilation:

1. The sound assimilated or geminated should not be already geminated (C₁C₁V→*C₁C₁C₁). This condition is very important, since it protects the syllable structure, which does not allow the occurrence of a cluster of three consonants in one syllable (*CCC). ḥilla lakum (permitted to you). The first /l/ is already geminated. Therefore, it is not permissible to delete the short vowel /a/ after it and geminate the second /l/ with the third /l/ so as to have three /l’s / [ * III ]. Likewise, / ʿashadda ʾikrā / → / * ʿashaḍḍ ʾikrā / [ * ʾixi :C₁C₁C₁ ].

2. The second situation in which idghām is not allowed is when nunation intervenes between consonants that might otherwise geminate, as in:
   ghafūrun raḥim → ghafūrraḥīm → * ghafūrraḥīm.
   gaḥfūran raḥīma → gaḥfūrraḥīma → *
   gaḥfūrraḥīma.
   kaṣafūna maškūl → kaṣafīmašmāškūl → * kaṣafīmašmāškūl.
   Again al-idghām al-kabīr is not allowed here because it violates the syllable structure.

3. The third condition concerns the assimilation of /t/ in particular. It should not be a first or second person pronoun / tu, ta, or ti / e.g.:
   kuntu turābā → * kunt turābā (I were dust),
   ṣaḥaṣṣaṣṭanta tusmīcu → * ṣaḥaṣṣaṣṭant tusmīcu (do you make
the deaf to hear),

\[ \text{laqad jīṭi ẓay'ān fariyyan} \rightarrow \text{laqad jīṭ ẓay'ān fariyyan} \]

(truly an amazing thing hast thou brought).

Again it is the syllabic structure that prohibits \textit{al-idghām al-kabīr} here. If assimilation were to take place in these three examples, the result would be:

\[
\begin{align*}
* \text{ntt} & \quad \text{CCC} \\
* \text{ntt} & \quad \text{CCC} \\
* \text{ṭūṣ} & \quad \text{CCC}
\end{align*}
\]

All qūrān agree on the above three conditions,\(^8\) which may, in fact, be stated as one. Thus we may say that no assimilation or gemination can take place if the consonant preceding the short vowel that is to be dropped is itself preceded by a consonant. Ibn Mujāhid limits his prohibition here to the presence of \textit{sukūn} on a consonant, as opposed to a glide or a long vowel.\(^9\)

The question here is whether or not the qūrān observe this condition in their practical reading.

In the readings of Abū Āmīr and some of his followers, I have counted more than twenty-five cases in which they allow three consonant clusters to occur, in violation of the theories of both grammarians and scholars of \textit{tajwīd}. Examples are:

1. \[ \text{waṣṭa'ala ẓarrā'su ẓayban} \rightarrow \text{waṣṭa'ala ẓarrā'sṣayban} \]

(and the hair of my head doth glisten with grey).

\[ \text{ṭūṣ} : \text{CCC.} \]

2. \[ \text{min ba'ḍī ẓulmihi} \rightarrow \text{min ba'ḍīẓulmihi} \]

(after a wrong).

\(^8\) \textit{an-Nashr}, 1 / 279.

\(^9\) \textit{at-Taysīr}, 25.
3- wa naḥnu laḥū ẓābidūn → wa naḥnllahū ẓābidūn (and it is he whom we worship).

4- šahr ramaḍān → šahr ramaḍān (the month of Ramadān).

5- Some other examples are:

   cṣṣ, cṣṣ, ḍḍḍ, ṭṭ, ʾt, rṣṣ, rṣḥ, ṣṣ, ṭṭ, ḷl, ḷl, ḷṣṣ. 10

4. The fourth condition for the permissibility of al-idghām al-kabīr, which is not accepted by all the qurrā', is that the word of which the last consonant might assimilate should not be in the jussive case of a verb with weak third radical, e. g.:

   wa man yabtaṣī ẓayra l-Islām (if anyone desires a religion other than Islām),

   yabtaṣī: not in jussive,

   yabtaṣī: in jussive.

   * wa man yabtaṣṣayr al- Islām : dropping the vowel and geminating sounds (whoever wants other than Islam...).

Assimilation and gemination are, however, allowed here by some qurrā'.11

Some examples of al-idghām al-kabīr that Abū ʿAmr uses frequently are:

10 Instances are given in full below:

11 an-Nashr, 1 / 279.
yuṣaʾṣibū man yāšāʾu → yuṣaʾṣimmay yašāʾu (he punishes whom he pleases),
‘ilā al-jannati zumarā → ‘ilā al-jannazzumarā (... to the Garden in crowds),
ḥayū tu’marūn → ḥayyttu’marūn (where you are ordered),
wa ḥaxraja ḍuḥāḥā → wa ḥaxraḏḏuḥāḥā (and its splendor doth bring out ...),
yakādu zaytuhā yuḏīʾu → yakazzaytuhā yuḏīʾu (whose oil is well-nigh luminous).
2.5. Historical Assimilation:

Historical assimilation is one "which has taken place in the course of development of a language, and by which a word which was once pronounced in a certain way came to be pronounced subsequently in another way" \(^1\). It is the opposite of contextual or juxtapositional assimilation which is actual assimilation; therefore, when the word "assimilation" is used in phonetics or phonology without further modification, it means contextual assimilation and not historical assimilation. For this reason, historical assimilation is the business of historical linguistics. Another difference between the two types of assimilation is that historical assimilation involves a change only within a word, while in contextual assimilation, a change is found across morpheme and word boundaries as well as within the same word.

The significance of the study of historical assimilation is not the same in all languages. Some languages have undergone change enough in short or long periods to make it worth studying them historically, while some others, including classical Arabic, have not. "Arabic has not undergone significant phonological or syntactical change in its scientific-literary form" \(^2\). Thus there is not a great deal to be said about classical Arabic phonetics from a historical point of view.

Furthermore, we do not know much about early classical

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Arabic. What we know goes back only to about 150 years before the rise of Islam, and even that was not written down till the second century of the hijrah. In the first stages of classical Arabic, it is not easy to show how the Arabic sounds change, for lack of early material. Contemporary classical Arabic is similar to that described by the earlier grammarians both syntactically and phonologically. The only sounds that appear to have changed are /q/, /q/, /t/, and to some extent /d/. In fact, the Arabic linguists do not directly deal with the history of changes in sounds. They mention the "ushūl" (original sounds) and differentiate between them and the furūc (derived sounds) which occur in words involving free variation.

It seems to me that the most likely reason for the Arabs' neglecting the study of sound historically is the general belief

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3 That is to say that this is the earliest period for which we have any considerable amount of material, rather than merely a few words from inscriptions, such as "naqsh an-namārah" (328 A.D.) or even naqsh umm al-jīmāl al-Awwal, about (250 A.D.).

4 See (1.5. above.

5 Some linguists say something about the history of small changes in sounds; they do not however say when these took place, but only why they took place. A report of as-Suyūṭi from Abū Ubaydah is an example: "The Arabs drop hamzah in four words in common use. These are: khābiyāh (large vessel) from khaba (hide), barīyyah (humanity) from bara'a (create), nabi (prophet) from an-naba' (news), and ārūriyyah (children) from darāa (to give)." (al-Muzhir, 2/252).

6 The Arabs sometimes differentiate between the actual form of words and what they think to be the original form, even if the latter is not recorded. To quote Ibn Jinni: "It has to be understood that when we say the original of qāma, bā'ā... is qawama and bayā'a... we do not mean that these words were for a time pronounced in this manner and that this pronunciation was subsequently abandoned. We mean that if they were pronounced according to analogy with similar forms they would be pronounced qawama and bayā'a" (al-Munṣīf, 1/190).
that languages in general and Arabic in particular are *tawqifiyah* (taught to mankind by *Allah*)\(^7\). Arabic was revealed and was thus learned completely at one time without going through different stages of development. Abū ʿAlī al-Fārisī says: "This language (Arabic) came down as a whole, like something imprinted ... no part of it can be adjudged to be earlier than another".\(^8\)

Another reason may be that having recorded very many roots similar to one another except in one sound, the Arabic linguists think that this substitution of sounds is habitual to Arabic. Therefore, they accept words without giving much attention to their phonological history.

The question here is how they know which sound is the original and which is the derived or developed. The criteria that they adopt for this are the following:

1. Frequency of occurrence:

   In cases where two or more roots exist, exactly similar to one another except in one sound, one is said to be the original and the other (s) derived from it, in accordance with the relative frequency of their occurrence.

   *khāmil / khāmin* (languid).
   *bal / ban* (rather).

   Both words in each set above are reported to have the same meaning, but the first, in each case, is reported to be used more frequently. This implies to the Arabic linguists that the / 1 / in the first set is the original and that the / n / is

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\(^7\) See for ex. *al-Khaṣāris*, 1 / 47.

\(^8\) *al-Khaṣāris*, 2 / 40.
developed from it; the same is true for the second set also.

2. Number of the inflectional forms recorded:

The root that is recorded as being *akthar taşarrufan* (used in more / most different inflected forms) is taken as the original. For example *hatalat / hatanat as-samā'u* (it rains) are found in an equal number of inflected forms:

<table>
<thead>
<tr>
<th>word</th>
<th>type</th>
</tr>
</thead>
<tbody>
<tr>
<td>hatalat / hatanat</td>
<td>mādi</td>
</tr>
<tr>
<td>tahtil / tahtin</td>
<td>muḍāriće</td>
</tr>
<tr>
<td>tahtāl / tahtān</td>
<td>maṣdar</td>
</tr>
<tr>
<td>huttal / huttan</td>
<td>waṣf</td>
</tr>
</tbody>
</table>

On this criterion, Ibn Jinni arrives at the conclusion that both roots are original. Modern linguists, on the first criterion, frequency of occurrence, arrive at the conclusion that / *tahtān* / is the original, since it occurs more frequently than / *tahtāl* / 10. In the case of the roots *quḥḥ / kuḥḥ* (pure as in *Arabī quḥḥ / kuḥḥ* ...), *quḥḥ* is taken as the original, because it is recorded in the plural / *aqḥāḥ* / whereas *kuḥḥ* is not. 11

3. Occurrence in specific dialects:

The form used in a specific dialect or region is sometimes

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9 *al-Khaṣṣāṣ, 2 / 82.*
10 I. Anis, *Min asrār al-lughah,* 79, and *Izz ad-Din at-Tanrikhi* (ed.), *Kitāb al-ibdāl* intro., 1 / 22
11 *Sirr 金沙 at al-irāb,* 1 / 180-181.
taken as being the derived one. 12. The use of / am / as the
definite article in the southern part of Arabic peninsula is one
example.

The two or more words involved in each case must have
exactly the same meaning in order to be considered as having
undergone /bdāl (substitution). This condition is very important,
since two such words may have a similar general meaning, but
each with its own particular sense, being a minimal pair:

/jamāda / jamāsa/ both mean to freeze but they are used of
different substances:

/jamāda al-māw/ (the water froze).
/jamāsa al-wadak/ (the (diet) oil or fat froze).

/qāḍama / xaḍama/ (both mean to eat, but they are again used
of substances of different consistencies):

/qāḍama / is used for eating something hard or dry (to
gnaw), while /xaḍama / is used for eating something wet or
moist (to munch).

No substitution is considered to have taken place in either
of these two sounds, and both roots are taken as being original.
However, it is reported that Dhū ar-Rummah uses jamāsa in one
of his verses, speaking of water: wal-md)u jāmisu; al-Aṣmaği
considers this a mistake. Ibn Sīdah says: " If any one were to
claim that /s/ had been substituted for / d / here, his claim
would not be accepted. 13.

On the other hand, when only one sound is used and is said
to be developed from another that is no longer used, the original

12 Sometimes both sounds are taken as being original.
13 al-Mukḥassāṣ, 13 / 287.
sound of the one used may be established in one or more of the following ways, from other inflections of the root:

1. From the maṣdar and muḍāriṭ:
   - y → ā bāṣa (he sales).
   - bayc ((n.) sale).
   - w → ā qāla (he said).
   - qawl (saying).

2. From the plural:
   - w → m fam (a mouth).
   - ḥafwāh (mouths).

3. From the dual:
   - w → ā caṣā (a stick).
   - caṣawān (two sticks).

4. From the diminutive:
   - w → ā sāṣid (an arm).
   - suwaycīd (small arm).

5. From the nisbah:
   - w → ā malhā (a place of entertainment).
   - malhawiyy (someone/something connected with a place of entertainment).

6. From analogy:
   - This is one of the principal ways of establishing the original sounds. When Arabic phoneticians say that the original roots of the words qāma (to stand), bāṣa (to seal) are * qawama and * bayacā respectively, they do not mean that these forms were used. Rather they deduce them according to the pattern of the strong root faṣala yafṣalu and its derivatives.14

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14 al-Munṣif, 1 / 190.
Some such words are reported as occurring in the strong root pattern. Although they are thus used with the original sound, they have been considered in Arabic linguistics as exceptions; such are *istanwāqa al-jamalu (the camel behaved like a she-camel), *istarwaḥa (to ventilate), and *istaḥwaḍa (to overwhelm). Such words do not occur with assimilation: *istanāqa, *istarāḥa (meaning to ventilate), and *istaḥāḍa.

\[15\] al-Munṣif, 1 / 190-191.
Chapter Three
Chapter Three

Sounds in Combination

Arabic is a language that has a wide range of sounds, from the farthest part of the throat (glottal) forward down to the lips (labial). The Arabs recognize three types of close relationship:

1. Tamāthul,
2. Tajānus, and
3. Taqārub.

With tamāthul, they define the two sounds in question as sounds "... for which you put your tongue in the same place." In other words, the second is simply the first repeated, \( C_1 C_1 \), as 'tt', 'bb', and 'ss'. Sibawayh defines them as sounds "... for which you put your tongue in one place without moving it." The two sounds are usually geminated for ease of articulation.

With tajānus, the Arabs describe the two sounds as having the same makhraj (place of articulation) but not the same şifah (manner of articulation), as \( b / m, l / n \), and \( s / š \). In fact homorganic closeness affects sounds more than the manner of articulation.

With taqārub, the two sounds have neither the same place of articulation nor the same manner of articulation; they are quite close, however, either in their place of articulation or in

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1 In this chapter, we are mostly speaking with regard to the Arabs' point of view concerning the combination of sounds. We ignore the interference of short vowels; however, we shall focus on them when it is necessary. As an example, the Arabs consider /a/ and /h/ to occur consecutively in such words as /ahl/ (family).
2 an-Nashr, 1 / 278.
3 al-Kitāb, 2 / 407.
their manner of articulation or in both\textsuperscript{4}. To Sibawayh, \textit{mutajānis} and \textit{mutaqārib} are the same: he calls them both \textit{mutaqārib}\textsuperscript{5}. Sibawayh's view is practically perhaps better, since both Arabic linguists and scholars of \textit{tajwīd} cite almost identical definitions of \textit{mutajānis} and \textit{mutaqārib} and speak about them in very similar terms. To illustrate these three relationships, we may use this table:

<table>
<thead>
<tr>
<th>type</th>
<th>P. O. A</th>
<th>M. O. A</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>mutamāthil</td>
<td>the same</td>
<td>the same</td>
<td>bb</td>
</tr>
<tr>
<td>mutajānis</td>
<td>the same</td>
<td>0</td>
<td>bm</td>
</tr>
<tr>
<td>mutaqārib</td>
<td>close</td>
<td>close</td>
<td>tā ṭa</td>
</tr>
<tr>
<td>-</td>
<td>0</td>
<td>close</td>
<td>tā ṭa</td>
</tr>
<tr>
<td>-</td>
<td>close</td>
<td>close</td>
<td>tā ṭa</td>
</tr>
</tbody>
</table>

Sounds other than those having one of these three types of relationship are considered \textit{mutabācid} (distant, as in the case of /h/ and /b/).

We have to consider here the degree of closeness between sounds and what is meant by the same place of articulation. How close are the places of articulation in \textit{mutaqārib}?

In answering such questions, we should consider the Arabs' division of sounds into two groups: \textit{ḥalqī} (throat) and \textit{famawī} (oral) sounds. There are three sub-groups of the \textit{ḥalqī} group:

\textsuperscript{4} an-Nashr, 1/278.
\textsuperscript{5} al-Kitāb, 2/411.

* P. O. A = point of articulation.
** M. O. A = manner of articulation.
1. glottal: ١, ِه.
2. pharyngeal: َّ, ُه.
3. uvular: ّء, ّخ.

Ibn Jinnî speaks about the sounds in all three groups as being mutaqârib, even though, in fact, they are not so with one another in the same degree, for example:

- /察h/ (family) root ُهL،
- /وو١و١/ (a name of mountain in Madînah) root ُهD، and
- /ؤو١/ (brother) root ّء. ٦

These show that Ibn Jinnî is not using the term mutaqârib with precision. He calls the pair of sounds /察h/، /ؤو١/، /ؤو١/ mutaqârib, whereas, in fact, in the first example, the two sounds are mutajânis, in the second, they are contiguously articulated, and in the third, they are distinctly articulated.

From this, we may conclude that when speaking about the nearness of sounds, Arabic linguists are not necessarily specific about the place of articulation. To them mutaqârib has a wide range of signification. It sometimes implies mutajânis.

In their discussion of ta'llîf al-١u̇rûf (the combination of sounds), the Arabic linguists give the manner of articulation less attention than they do the place of articulation. This is because it is indeed the place of articulation that principally determines whether certain sounds can occur in combination; the manner of articulation is far less important, from the point of view of ease of articulation.

We, as the Arabic linguists do, shall discuss the combination of sounds in this chapter considering two related

٦ al-Khâsîs, ١ / ٥٤.
aspects:
1. the relationships between sounds and their acceptance or otherwise of being combined with each other within the same root.
2. the influence of sounds upon each other.

Although number one is important, number two, which results in some kind of assimilation, is more important and more relevant to our topic. The two aspects will be discussed consecutively, beginning with their application to consonants, in which both are concerned:

3. 1. Consonants:

3. 1.1. Taşıf al-ḥurūf (the combination of sounds):

As far as the combination of sounds, both within and across word boundaries, is concerned, the Arabic phoneticians focus on the environment in which they most commonly combine, in which they less commonly combine, and in which they do not combine at all. In this context, they are concerned rather with the root than the word as such.

In general, the Arabic linguists ignore vowels in determining the root of a word; so the root of ṣahaba (he went) is ṣHB.

Vowels really only come into consideration in words that we may call uni-literal and bi-literal. These will be briefly discussed.

The triliteral root will receive most attention. The quadriliteral and quinqueliteral roots will be omitted, since they share the characteristics of the triliterals to a great extent.
1. Uni-literal forms:

By uni-liters what is meant is occurrences of a single consonant having an independent meaning, whether or not this single consonant affects the inflection of the following word. The majority of these is *maftūh* (followed by /a/), such as:

- *hamzat al- istifham* (interrogative particle /a/),
- *wāw al-qaf* (particle of conjunction), and
- *fā al-dāf* (particle of conjunction).

A few particles are *maksūr* (followed by /i/), such as:

- *lām al-‘amr* (imperative particle /i/).

None of this type is *madmūm* (followed by /u/). The reason for the predominance of *fatḥah* in such cases is said to be ease of articulation. /a/ is said to be *khafifah* (light, easy to pronounce), /i/ is harder than /a/, and /u/ is *‘aqaluhā* (the heaviest, most difficult of the three).

2. Bi-literal forms:

Similarly, the vowels following the first radical of bi-literal forms are ordered according to their frequency of use as follows: *maftūh*, *maksūr*, and *madmūm*. Very few words of this type have *ḏammah* after the first radical. Some examples of bi-literal forms are:

a. *kam* (how many?),

   *man* (who?),

   *‘aw* (or),

b. *min* (from),

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7 *al-Khaṣāṣeb*, 1/71.
in (if),
c. huwa (he).

3. Triliteral forms:

Regarding the combination of these sounds, there are three degrees of acceptability: "suitable", "less suitable" and "unsuitable" (or "prohibited").

The "suitable" type, is that in which the three consonants are articulated "distantly" from one another,⁸ as in the word ʾalam (pain): /ʔ/ glottal, /l/ alveolar, and /m/ bilabial. There is no difficulty in pronouncing such combinations.

The "less suitable" type is that in which two identical consonants occur in the same root, as in:

Maqaq [root MQQ] (length),
madad [root MDD] (support),
sabab [root SBB] (reason).

The third type, the "unsuitable" or "prohibited", is that in which the three consonants are articulated very closely together, mutaqārib. Some combinations in this type are difficult; some are not. Here the most difficult sounds to combine together are ḥalqī sounds (sounds articulated in the throat area, glottal, pharyngeal, and uvular /ʔ, ʰ, ḫ, ɣ, x/), especially when articulated contiguously without being separated by any other consonant.

The sounds of Arabic may be grouped in descending order from the ḥalqī (throat sounds) down to famawi (lip sounds):

1. **Halqī sounds** (throat sounds):

Halqī sounds are six: / h, c, ḥ, ẓ, x /. They are the most difficult sounds, especially when combined within the same root. The possibilities in the combination of such sounds are:

a. The combining of three of them.

b. The repetition of one of them [ takrīr ].

c. The combining of two of them:
   1. Contiguously,
   2. Distantly.

As for the combination of three closely articulated sounds, this does not occur in Arabic with ḥalqī sounds. The only reported case of such a combination is *al-huṣrūc* (a kind of plant), a word which is considered as instance of ḍaḍīf (weak Arabic). The combination of / h, c, and x / is difficult to pronounce and the repetition of / c / makes it even more difficult.

The ḥalqī sounds are much less commonly repeated within a root than others. Some examples are:

- *ad-daylīyah* (nice garden),
- *ar-raylīyah* (a kind of food made of milk and flour),
- *al-mahah* (beauty),
- *al-baḥaḥ* (hoarseness),
- *aṣ-ṣuʾcāc*[^9] (beam).

Two ḥalqī sounds are also less commonly contiguously combined than others, as shown below:

[^9]: Sirr ṣinaʿat al-irāb, 2 / 813-814.
The only ḥalqī sounds which occur contiguously together within the same root are:

1. ّ + ḥ: ّahl (family), ّahaba (?).

2. ّ + ُ: ّuḥud (the name of mountain in Madinah), ّifnah (?).

3. ّ + َ: ّax (brother), ّaxāḍa (to take), ّuxar (others).

4. ḥ + ّ: baha’y (?), nahiy (?).

5. ḥ + ِ: hucrest (which is rejected) (a kind of plant), dahac (to call camels), lahi (be compliant).

6. ِ + ḥ10: ّahd (knowledge), ّuhr (adultery), ّihn (wool).

7. َ + ِ: baxac (to harm oneself), naxc, xucrest.

---

10 al-Khalil is mistaken when he claims that ّh is muhmal (not used), al-�数, 1 / 61. In fact he himself later gives some examples, such as ّahaba, ّahaja, ّahd, ّuhr, ّahaqa, ّahila, ّahama, ّihn.
A chart of *halqi* sounds contiguously combined would look like this:

<table>
<thead>
<tr>
<th></th>
<th>h</th>
<th>c</th>
<th>h</th>
<th>y</th>
<th>x</th>
</tr>
</thead>
<tbody>
<tr>
<td>h</td>
<td>0</td>
<td>+</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>h</td>
<td>+</td>
<td>0</td>
<td>+</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>c</td>
<td>*</td>
<td>+</td>
<td>0</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>h</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>0</td>
<td>*</td>
</tr>
<tr>
<td>y</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>0</td>
</tr>
<tr>
<td>x</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>0</td>
</tr>
</tbody>
</table>

* do not occur

Even when two *halqi* sounds are separated, they still only rarely occur, although, more commonly than in contiguous combination. Here are some examples:

*hada*a (to be quiet),
*cib* (burden),
*xaba*a (to hide),
*gayhab* (very dark night).

2. *Aqṣā al-lisān* (the back of the tongue) / q, k, j /

These three sounds do not occur contiguously in Arabic, although they are not more difficult to combine than *halqi* sounds, which, as we have seen, are claimed to be the most difficult to be combined contiguously. / q, k, j / are never used
contiguously within the same root:

\[
\begin{align*}
* q + k & \quad * q + j & \quad * k + q \\
* k + j & \quad * j + q & \quad * j + k^{11}
\end{align*}
\]

These sounds can, however, follow each other when they occur in two separated roots as in:

- *ka qawlika* (as you said),
- *al-haqqu kulluhu* (the whole truth),
- *'axrij kutubaka* (take out your books).

3. / j / with ṣurūf at-tafkhīm (emphatic sounds):

There are seven tafkhīm sounds\(^{12}\) /ṣ, ẓ, š, ſ, x, ɣ, and q/. As regards the combination of these with / j /, they are divided into two groups:

1. Sounds that do not combine with / j / anyway. These are /ɣ, ẓ, š, ẓ, x / and / q /. In pure Arabic words. Therefore, Arabic linguists consider the following words to be ṣa'īmi (originally not Arabic) and muṣarrab (Arabized):
   - *manjanīq* (catapult),
   - *ṣawlajān* (staff with a curved end),
   - *tājin* (frying pan).

2. As for the remaining emphatic sounds, namely /ḍ, ẓ, and x/, / j / only very rarely combines with them. Words that

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\(^{11}\)Ibrahim Anis says: "I have not found ḥim followed by kāf in Arabic dictionaries except in one or two strange words, like jakara (to attempt a hard sell)", *al-ASwāṭ al-lughawīyyah*, 83.

\(^{12}\) *Istīlā* is a term that is used more by the Arabs.

\(^{13}\) *al-Bayān wat-tabyin*, 1 / 69.
have such a combination may be counted on the fingers although, perhaps surprisingly, some examples are words in very common use, such as xaraja (to go out), naḍija (to be ripe or well cooked) and jaḥaḍa (to protrude or bulge).  

4. Ḥurūf aṣ-ṣafīr (sibilant sounds) : / s, š, z, ū /

The hissing sibilant sounds / s, š, z / do not combine with each other:

\[
* s + š / z \quad * š + s / z \quad * z + s / š
\]

However, when this group of sounds combine with hushing / ū /, it must precede them as in šazaba (to be ragged), šazr (trail, difficulty), šasaфа (to be dry), šasaervlet (to be remote), šaṣaba (to be hard, painful), and šaṣāšāp (year of drought).  

Ibn Jinni says: "neither / š, s, or z / may precede / ū /".  

\[
* s + š \quad * š + š \quad * z + š
\]

As for the combination of sibilant sounds with other sounds, the following cases may be considered:

A. / s / with / ū /:

/ s / does not combine with / ū / within the same root. al-Jawāliqi says: "If you come across a word that has both / s / and / ū /, you may consider this word not as pure Arabic but rather as an adopted word from a foreign language ".  

14 al-Aswat al-lughawiyyah, 80.
15 Sirr al-ṣaḥākah, 58, and Lisan al-ʿArab, chapters / z, s, š /.
16 Sirr ṣiḥāyat al-ʿrab, 2 / 817.
17 Ibid.
18 Sahm al-āḥāq fi wahm al-ʿalāq, 25.
\* s + ð \* ð + s

B. /z/ with /ð, ð, ð/: 
"/z/ does not combine with /ð, ð, ð/ in one root, whatever the order may be".\(^{19}\)
\* z + ð / ð / ð \* ð + z
\* ð + z

C. /ṣ/ with /ð and 1/: 
/ṣ/ does not occur after /ð/ nor after /1/ according to al-Khallīl Ibn Aḥmad; however, rajulun lišlāš (light man) is reported as an exception.\(^{20}\)
\* 1 + ṣ \* ḍ + ṣ
The reverse is accepted with /1/ only as in:
ṣ + 1 : šalāl (handicap)
\* ṣ + ḍ

5. Non-glide sonorants /n, l, r/: 
Any possible order of these three sounds is accepted within the same root as well as across word boundary. The only exception is that /1/ cannot be followed by /r/\(^{21}\).

n + r : nabara (to kill a camel) and naēara (to scatter).
n + 1 : nāla (to gain) naḥula (to become thin).
r + n : raṣuna (to be sedate).
r + 1 : rajul (a man) rjal (a leg).

\(^{19}\) al-Bayān wat-tabyin, 1 / 69.
\(^{20}\) al-Lisān al-`Arabī, Fasl / 1 / Bāb / ṣ /.
\(^{21}\) al-Muzhir, 1 / 195.
I + n : lan (no / not) and ladun (from).

* I + r .

It is not as Ibn Jinnî claims: "As for the combination of / r /, / l /, and / n /, it is accepted wherever / r / precedes the other as waral (monitor lizard), ḫurul, rannah (ringing sound), and rand (myrrh), but neither of them is accepted before / r /. The reason behind this rejection is that / r / is stronger than / l , n /. Ibn Jinnî, in this statement, ignores examples such as naḥar, naḏar, and naēar. He must mean that / n / cannot occur immediately before / r /, which is correct, and it is supported by his explanation: "If the two sounds (n, r) occur contiguously, the strong one comes first". A few exceptions are reported with geminated / n / which is stronger:

- dannara (to become wealthy).
- muzannir (a big tall man).

Sibawayh is more specific, saying that: "We do not know of nun sākinah (the voiceless / n /) occurring before / r / and / l /, for it is difficult to pronounce without assimilation, and if it is assimilated and geminated it, it will be confused with the geminated original". The sukūn condition of / n /, which means immediately contiguous, has been excluded from the discussion in this sub-chapter.

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22 Sirr ṣinārat al-irrāb, 2 / 818.
23 Ibid.
24 al-Kitāb, 2 / 416.
6. Dentals / š, ḥ, e / with / t /:
These sounds do not combine with each other in one root, except that / t / and / e / may occur in one root as in ḥaabaṭa (discourage) and ṭamaeat (to menstruate):

\[ * š + ḥ / e / t \] \[ * ḥ + š / e / t \]

7. Labials / f, m, b /:
It is difficult to combine these sounds in one root. The only combinable sounds here are:

1. \[ f + m \] as in fam (mouth), fahima (to understand).
2. \[ b + m \] as in būm (owls), ibtasama (to smile).

The remaining combinations do not occur.

\[ * f + b \] \[ * b + f \] \[ * m + b \] \[ * m + f \]

8. Summary of sounds that do not combine together in the same root:

1. \[ * ṣ + c, ḥ \] 2. \[ * h + ū, x, ṭ \]
3. \[ * c + ṣ, h, x, ḥ \] 4. \[ * ḫ + ṣ, h, c, x, ḥ \]
5. \[ * x + ṣ, h, ū, ḥ \] 6. \[ * ḡ + ṣ, h, ū, c, x \]
7. \[ * q + k, j \] 8. \[ * k + q, j \]
9. \[ * j + q, k \] 10. \[ * s + ṣ, z, ẓ, ḍ \]
11. \[ * ṣ + s, z, ẓ \] 12. \[ * z + s, ṣ, ẓ, ẓ, ẓ, ẓ \]
13. \[ * ẓ + s, r \] 14. \[ * ū + ū, ṣ, ẓ, ẓ \]
15. \[ * ḋ + z, ẓ \] 16. \[ * ḍ + z, ṭ, ẓ, s \]
17. \[ * ẓ + t \] 18. \[ * ṭ + ū, ẓ \]
19. \[ * ṭ + ẓ, ṭ \] 20. \[ * f + b \]
21. \[ * m + b, f \] 22. \[ * b + f \]
Arabic sounds in descending order according to the number of sounds that do not precede or follow them:

<table>
<thead>
<tr>
<th>Sounds</th>
<th>not preceded by</th>
<th>not followed by</th>
<th>- of conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>γ</td>
<td>x, c, h, h, h, h</td>
<td>h, h, c, x, x</td>
<td>10</td>
</tr>
<tr>
<td>ḍ</td>
<td>e, ḍ, t, z, s</td>
<td>e, ḍ, t, z, s</td>
<td>10</td>
</tr>
<tr>
<td>z</td>
<td>ū, s, s</td>
<td>s, s, s, ā, ā, ā</td>
<td>9</td>
</tr>
<tr>
<td>h</td>
<td>x, v, h</td>
<td>v, h, c, x, v</td>
<td>9</td>
</tr>
<tr>
<td>x</td>
<td>γ, c, h, h</td>
<td>h, h, γ, h</td>
<td>8</td>
</tr>
<tr>
<td>ō</td>
<td>e, ō, t, z</td>
<td>ō, ḍ, t, z</td>
<td>8</td>
</tr>
<tr>
<td>c</td>
<td>γ, h, h</td>
<td>h, x, γ</td>
<td>7</td>
</tr>
<tr>
<td>s</td>
<td>z, s, ā</td>
<td>s, s, z, ā</td>
<td>7</td>
</tr>
<tr>
<td>ṭ</td>
<td>x, v, c, h</td>
<td>c, γ</td>
<td>6</td>
</tr>
<tr>
<td>h</td>
<td>γ, x, h</td>
<td>h, γ, x</td>
<td>6</td>
</tr>
<tr>
<td>š</td>
<td>l, d, z, s, s</td>
<td>........</td>
<td>5</td>
</tr>
<tr>
<td>š</td>
<td>z, s</td>
<td>s, z, š</td>
<td>5</td>
</tr>
<tr>
<td>e</td>
<td>ā, š</td>
<td>ā, š</td>
<td>4</td>
</tr>
<tr>
<td>t</td>
<td>ā, š</td>
<td>ā, š</td>
<td>4</td>
</tr>
<tr>
<td>q</td>
<td>j, k</td>
<td>k, j</td>
<td>4</td>
</tr>
<tr>
<td>k</td>
<td>q, j</td>
<td>q, j</td>
<td>4</td>
</tr>
<tr>
<td>j</td>
<td>q, k</td>
<td>q, k</td>
<td>4</td>
</tr>
<tr>
<td>d</td>
<td>z</td>
<td>z, š</td>
<td>3</td>
</tr>
<tr>
<td>f</td>
<td>m, b</td>
<td>b</td>
<td>3</td>
</tr>
<tr>
<td>b</td>
<td>m, f</td>
<td>f</td>
<td>3</td>
</tr>
<tr>
<td>t</td>
<td>d, e</td>
<td>---</td>
<td>2</td>
</tr>
<tr>
<td>l</td>
<td>---</td>
<td>ř, r</td>
<td>2</td>
</tr>
<tr>
<td>m</td>
<td>---</td>
<td>ř, f</td>
<td>2</td>
</tr>
<tr>
<td>r</td>
<td>n</td>
<td>---</td>
<td>1</td>
</tr>
<tr>
<td>n</td>
<td>---</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>d</td>
<td>---</td>
<td>---</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>64</td>
<td>126</td>
</tr>
</tbody>
</table>
Arabic sounds in descending order according to the number of conditioning sounds in a preceding or following position within the same word:

<table>
<thead>
<tr>
<th>sounds</th>
<th>of conditioning sounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>y, ţ</td>
<td>10</td>
</tr>
<tr>
<td>h, z</td>
<td>9</td>
</tr>
<tr>
<td>ð, x</td>
<td>8</td>
</tr>
<tr>
<td>c, s</td>
<td>7</td>
</tr>
<tr>
<td>h, ð</td>
<td>6</td>
</tr>
<tr>
<td>š, š</td>
<td>5</td>
</tr>
<tr>
<td>j, k, q, e, ţ</td>
<td>4</td>
</tr>
<tr>
<td>b, f, ð</td>
<td>3</td>
</tr>
<tr>
<td>t, m, l</td>
<td>2</td>
</tr>
<tr>
<td>r</td>
<td>1</td>
</tr>
<tr>
<td>n, d</td>
<td>0</td>
</tr>
</tbody>
</table>

Muḥammad Al-Khūfī carried out a statistical study using some modern linguistics texts. He came to the conclusion that the order of Arabic sounds according to their frequency is as follows: a, i, l, ā, t, u, n, m, ṭ, y, r, w, c, h, b, ŋ, d, f, s, k, q, ḥ, j, ū, ţ, š, ř, ŋ, ŋ, x,
On the other hand, Ibn Durayd claims that: "The most frequently used sounds in Arabic are w / u, y / f, and ẓ, and the least frequently used, as they are difficult to pronounce, are ẓ, then ẓ, then ẓ, then q, then x, then c, then n, then l, then r, then b, then m. Regarding this strange statement, we must assume that several omissions (13 consonants) have occurred, for some reason, towards the middle of the series. This is because / m /, / b /, / r /, / l /, and / n / are not difficult sounds. They are all except for / m /, among the ẓalāqah sounds. Ibn Durayd himself supports this idea when he says about the ẓalāqah sounds: "Wa hiya ḥakharu l-ḥurūf wa ḥansanuhā imtizājan bi ghayrihā (they are the most common sounds and the easiest to combine).

The so called ḥurūf ad-ẓalāqah (labial / b /, / m /, and / f /, and alveolar sonorants / l /, / n /, and / r /) have been given most attention by Arabic linguists, and have been described as sounds of which quadriliteral and quinqueliteral Arabic words should have at least one; otherwise these words are considered as mucarrab / ẓajamīf. Except for some ten quadriliteral words. It is to be understood from such an

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26 Jamharat al-lughah, 1 / 12.
27 as-Suyūṭī reports the same statement, referring it to Ibn Durayd without comment. (see al-Muzhir, 1 / 195).
28 Jamharat al-lughah, 1 / 7.
29 al-Ayn, 1 / 58. Sirr ẓinārat al-ẓirāb, 1 / 65, and al-Muzhir, 1 / 270, etc.
30 al-Ayn, 1 / 52. al-Khalil adds: "Any quadriliteral noun that has no
assertion that the ǧalāqah sounds are the most frequently used in Arabic.

Another indication of how frequently a sound occurs is the number of conditioning sounds around it.

The least and the most frequently used consonants in Arabic may be indicated according to four different systems:

1. the consideration of the conditioning sounds,
2. Ibn Durayd's system,
3. al-Khūli's system,
4. consideration of the ǧalāqah sounds 31.

The following table shows the six most frequently used sounds according to these systems:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>sounds</td>
<td>ǧ, n, r</td>
<td>m, b, r</td>
<td>m, n, Ǧ</td>
<td>m, b, f</td>
</tr>
<tr>
<td></td>
<td>m, l, t</td>
<td>l, n, Ǧ</td>
<td>r, Ǧ, h</td>
<td>l, r, n</td>
</tr>
</tbody>
</table>

The four systems show a reasonable degree of agreement concerning the frequency of use of these sounds; thus we may conclude that:

1. Sounds with a less conditioning environment are used more in Arabic.
2. The Arabs' consideration of the existence of ḥurūf al-ǧalāqah 31 ǧalāqah sound should have one or both of the ǧalāqah sounds ( Ǧ, q ) or one or both of s and d ( see al-Ayn, 1 / 54).

31 Consonants only are considered here and not vowels or semi-vowels.
as ʿaṣjami  is accurate.  

3. The voiced consonants have less frequency in Arabic according to systems 2 and 3, but not system 1:
   a. assuming that the more conditioning there is the less used the sounds, 5 out of the 12 most conditioned sounds are voiced,
   b. in Ibn Durayd's system, 9 out of the 12 least used consonants are voiced,
   c. in al-Khūlī's system, 7 out of the 12 least used consonants are voiced.

4. of the conditioning sounds (as shown in the table below):
   a. 39 are homorganic,
   b. 44 are articulated further back than the sounds that they condition,
   c. 44 are articulated further forward than the sounds that they condition.

---

32 Half of them are alveolars / n, l, and r /. This frequency of use of the alveolars is similar to that in English. Hutcheson: "alveolar articulations have such a high frequency of occurrence in English." PhD. p. 17.

33 However, this result does not necessarily contradict Ibrahim Anis's claim that the percentage of the occurrence of voiceless sounds is not more than 25% of the total number (al-Aswāt al-lughawīyyah, 21) since the voiced sounds include vowels.
<table>
<thead>
<tr>
<th>homorganic</th>
<th>S. A. F</th>
<th>S. A. B</th>
<th>sounds</th>
<th>homorganic</th>
<th>S. A. F</th>
<th>S. A. B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>4</td>
<td>ġ</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>3</td>
<td>ď</td>
<td>2</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
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<td>Ċ</td>
<td>2</td>
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<td>1</td>
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<tr>
<td>2</td>
<td>1</td>
<td>0</td>
<td>θ</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>4</td>
<td>0</td>
<td>θ</td>
<td>0</td>
<td>3</td>
<td>0</td>
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<tr>
<td>0</td>
<td>3</td>
<td>0</td>
<td>θ</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>6</td>
<td>0</td>
<td>θ</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>θ</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>θ</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td>0</td>
<td>θ</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td>0</td>
<td>θ</td>
<td>0</td>
<td>1</td>
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<td>0</td>
<td>θ</td>
<td>0</td>
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</tr>
</tbody>
</table>

S. A. F  - sounds articulated further forward than the sounds that they condition.

S. A. B  - sounds articulated further back than the sounds that they condition.
It is important to see whether there are rules controlling the combination of Arabic consonants or not. Why do some consonants occur before some other consonants and not before others? We shall now discuss these questions and see what the Arabic linguists have said and how relevant that is.

1. What determines whether combination of sounds can take place is the place of articulation, which also determines the difficulty or ease of pronunciation. This is the reason why some homorganic and closely articulated sounds such as َخَبَل، َخَرَل، َكَمَل، َقَمَل are not combined. However, it is not always difficulty of pronunciation that prevents the combination of sounds. One example of this is that of /j/ with /k/ which are supposed never to occur together in the same root, even though, it is not difficult to pronounce them adjacently, as in َاكْرَحْيَاكَأ (he took you out) and َكاَجَلُس (as sitting).

2. Most of the sounds that do not accept combination have this characteristic bidirectionally, e.g. /خَُظ/ and vice versa /خَُظ/ 50 out of a total of 64 are bidirectional, and only 14 are unidirectional, in this respect. This latter type includes both homorganic and non-homorganic sounds.

Why should bidirectionally occur?

a. Non-homorganic sounds:

11 out of a total of 91 that do not allow combination unidirectionally are non-homorganic sounds. 9 out of the 11 will not combine with a sound produced further back than themselves and only 2 will not combine with a sound produced further forward than themselves. We may conclude that when two
sounds are difficult to combine, the one further back will normally come first.\textsuperscript{34} The only exceptions are the combination of $[x+c]$ and $[\varepsilon+t]$, where baxica (to anger), nuxa (spinal cord), and eabata (to stand firm), occur, but the two do not occur in the opposite combination.

\begin{align*}
\ast & \ c+x \quad x+c \\
\ast & \ t+\varepsilon \quad \varepsilon+t
\end{align*}

b. Homorganic sounds:

The only homorganic sounds which do not allow combination unidirectionally are $[\ast d+t]$, $[\ast l+r]$, and $[\ast m+b]$. The question is, why do the combinations not occur when the first sound of each set comes first, whereas they can combine when reversed?

1. $\ast d+t$

   $t+d$ as in watad (a peg).

2. $\ast l+r$

   $r+l$ as in waral.

3. $\ast m+b$

   $b+m$ as in büm (owl).

To Arabic linguists, the reason for the occurrence of such combination in one direction but not in the other is that the stronger sounds should be articulated before the weaker ones.\textsuperscript{35} It is not, in fact, clear as to what is meant by describing a sound

\textsuperscript{34} Ibn Jinni and some other Arabic linguists say that: the "stronger" sounds come first, as in the case of the combining of /s, š, z/ with /$s$/ . They must follow it since it is stronger than they (Sirr šināyat al-irāb, 2 / 817).

\textsuperscript{35} al-Khaṣāḳis, 1 / 54, al-Muzhir, 1 / 196, Jamharat al-lughah, 1 / 9.
as strong or weak. One such confusing statement is made by Ibn Jinnî: "If two (halqi sounds) are combined, the stronger one should come first, as in ḥahl, ḥuḥud, ḥax, ḥahd, and ḥuhr". It is confusing because, for example:

1. ḥ and ḥ: These combine in either direction, e.g.: ḥadaḍa (to be quiet), and ḥanḍa (to be comfortable).

2. c and ḥ: These also combine in either direction, e.g.: cahara (adultery) and ḥaraca (to run), and ḥajaca (to sleep at night). In fact, it is clear from his examples that by "if two halqi sounds are combined", he is here referring to contiguous combination, rather than combination with some consonant or consonants intervening.

Earlier than Ibn Jinnî, al-Khalîl also makes an inaccurate statement: "Ayn / c / is muhmalah (not used in the same root) with sounds / y, ḥ, ḥ, and x /". He must mean that these sounds do not combine with / c / if / c / comes first; however, he himself lists, in the same book, some examples that contradict his own assertion. The following are some examples:

- baxica (to anger) (1 / 123),
- naxaca (spite out) (1 / 121),
- dahača (to call camels) (1 / 103),
- nahaca (to be poor) (1 / 108),
- cahiba (to be careless) (1 / 109),
- cahida (promise) (1 / 121).

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36 al-Khaṣāṣ, 1 / 54.
37 al-ʿAyn, 1 / 61.
as strong or weak. One such confusing statement is made by Ibn Jinnī: "If two (Ḍalqī sounds) are combined, the stronger one should come first, as in ʿahl, ʿuḥud, ʿax, ʾahd, and ʿuhr." It is confusing because, for example:

1. ʿ and h: These combine in either direction, e.g.: ḥadāʾa (to be quiet), and ḥanīʿa (to be comfortable).

2. c and h: These also combine in either direction, e.g.: ʾahara (adultery) and ḥaraṭa (to run), and ḥajaʿa (to sleep at night). In fact, it is clear from his examples that by "if two Ḍalqī sounds are combined", he is here referring to contiguous combination, rather than combination with some consonant or consonants intervening.

Earlier than Ibn Jinnī, al-Khaṣṣāʿī also makes an inaccurate statement: "ʾayn /c/ is muḥmalah (not used in the same root) with sounds / y, h, ḥ, and x /." He must mean that these sounds do not combine with /c/ if /c/ comes first; however, he himself lists, in the same book, some examples that contradict his own assertion. The following are some examples:

- baxiʿa (to anger) (1/123),
- naxaʿa (spite out) (1/121),
- dahaʿa (to call camels) (1/103),
- nahāʿa (to be poor) (1/108),
- cahiʿa (to be careless) (1/109),
- cahiʿda (promise) (1/121).

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36 al-Khaṣṣāʿīs, 1/54.
37 al-ʾAyn, 1/61.
Regarding the combination of sounds, in general, Bahā’ ad-Dīn as-Subkī says: "The best and most frequent of these combinations are as follows:

1. A sequence of sounds going from back to central to front,
2. A sequence of sounds going from central to front to back,
3. A sequence of sounds going from central to back to front,
4. A sequence of sounds going from back to front to central,
5. A sequence of sounds going from front to back to central".\[38\]

\[38\] 'Arūs al-ASFRAH, 95.
3.1.2. *Idghām al-ţurūf wa ibrāluḥā*:

The Arabic consonants act differently from one another in their acceptance of *idghām* (assimilation) and of being used as *ibdāl* (free variations). Assimilation will be discussed in detail, starting with back sounds and moving forwards. The group of central-mouth sounds contains a large number of consonants; therefore, it may be further divided according to their manner of articulation. This may be shown in the following chart:

<table>
<thead>
<tr>
<th>Consonants</th>
<th>Back Sounds</th>
<th>Back Mouth Sounds</th>
<th>Central Mouth Sounds</th>
<th>Labials</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ūlqī</td>
<td>ˤaqṣā al-fam</td>
<td>wast al-fam</td>
<td>shafawi</td>
</tr>
<tr>
<td></td>
<td>x, y, c, ʰ, h, ˤ</td>
<td>j, k, q</td>
<td></td>
<td>m, b, f</td>
</tr>
<tr>
<td></td>
<td>bayna sha. / rikh.</td>
<td>rikhwah</td>
<td>shadīdah</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n, l, r</td>
<td></td>
<td>t, d, t</td>
<td></td>
</tr>
<tr>
<td></td>
<td>aḍ-ḍād</td>
<td>bayna al-asnān</td>
<td>ṣafir</td>
<td>z, s, ş, š</td>
</tr>
<tr>
<td></td>
<td>ḍ</td>
<td>(interdentals)</td>
<td>(sibilants)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e, ẓ, Ʌ</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I. Ḥalqī sounds:

A. Ḥamzah / ظ / (glottal stop):

The glottal stop / ظ / interchanges with non-consonants, being regarded as one of the most difficult sounds in Arabic. This sound has been discussed in great detail in the fields of both of Qirāʿāt and of Arabic linguistics. Indeed, numerous examples are given in books on Qirāʿāt, where one finds it difficult to formulate systematic rules about when this sound is pronounced as pure hamzah, where as in-between hamzah, where as a long vowel, and when it is altogether omitted. This is because Qurʿānic readers differ in pronouncing this sound in many cases. In fact, the same reader may pronounce the sound / ظ / differently in similar readings.

As for Arabic linguistics, linguists have identified situations where the sound / ظ / changes to a long vowel or a semi-vowel, and vice-versa, and have formulated rules for this. However, the rules may be combined and reduced in number. The interchange between / ظ / and non-consonantal sounds may be represented as:

1. ꞌv → ꞌv

   ꞌa → ꞌā / ظ __:
   ꞌa ꞌa → ꞌā mana → ꞌāmana (to believe).

   ꞌi → ꞌi / ظ __:
   ꞌi ꞌmān → ꞌi mān (believe).

   ꞌu → ꞌū / ظ __:
   ꞌu ꞌtīya → ꞌūtīya (given).

2. ظ → ꞌ∅ / ꞌa __ ≠ ꞌ (optional):
   ꞌjā ꞌa → ꞌjā ajaluhum → jā ꞌajaluhum.
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\[ \text{1) } \rightarrow y / \text{i} / \text{I} \neq \text{y} (\text{optional}): \]

\[ \text{a}l-b\text{igh}^\text{a} \text{yin} \rightarrow \text{a}l-b\text{igh}^\text{ay} \text{yin}. \]

\[ \text{2) } \rightarrow w / \text{u} / \text{U} \neq \text{y} (\text{optional}): \]

\[ \text{a}s-\text{sufah}^\text{a} \text{ulal} \rightarrow \text{a}s-\text{sufah}^\text{aw} \text{ulal}. \]

3. \[ \rightarrow y / \text{a} - \text{i} (\text{optional}): \]

\[ \text{a} \text{inna} \rightarrow \text{a yinna}. \]

4. \[ w / y \rightarrow \text{a} / \text{a} \neq \text{y} \]

\[ * \text{duc}^\text{aw} \rightarrow \text{duc}^\text{aw}. \]

\[ * \text{bin}^\text{ay} \rightarrow \text{bin}^\text{ay}. \]

5. \[ w \rightarrow \text{a} / \neq \text{aw} : \]

\[ * \text{waw}^\text{ail} \rightarrow \text{awaw}^\text{ail}. \]

6. \[ w / y \rightarrow \text{a} / \text{a} \text{y} \]

\[ * \text{qawil} \rightarrow \text{qawi}l. \]

\[ * \text{bawi}c \rightarrow \text{bawi}c. \]

\[ * \text{cajiwiz} \rightarrow \text{cajiwiz}. \]

\[ * \text{sa}h\text{ayif} \rightarrow \text{sa}h\text{ayif}. \]

\[ * \text{wawawil} \rightarrow \text{awawil} \rightarrow \text{awawil}. \]

\[ * \text{niy}^\text{ayif} \rightarrow \text{niy}^\text{ayif}. \]

However, there are a few exceptions where the glides \( w \) and \( y \) do not become hamzah but rather remain unchanged. These are:

\[ \text{cayin (evil eyed)}, \]

\[ \text{cawir (having one eye)}, \]

\[ \text{qasawir (lions)}, \]

\[ \text{macayish. (way of living)}, \]
The *hamzah* is pure when pronounced initially or immediately after a consonant except itself, as in:

- *'aš'ām* (ominous),
- *'al-xab'ā* (the hidden thing).

The following are general remarks on the *hamzah*:

1. /ʼ/ should not be pronounced as an emphatic sound. The readers of the Qurʾān and others should pronounce it carefully especially when it is followed by:
   a. /ā/ as in *'ātā* (to give), and *'āmīn* (so be it)
   b. emphatic sounds as in: *'Allāh* (God) *'at-talāq* (divorce)
   c. a homorganic sound as in: *'ihdīnā* (guide us)
   d. sounds articulated contiguously to it /c, ḥ/ as in:
      - *'actā* (to give),
      - *'aḥattu* (I encompassed).

2. *Hamzah* is pronounced in different ways; it may be pronounced as *muḥaqqaqah* (true *hamzah*), or it may be pronounced as *musahhalah* (lightened). The lightening of *hamzah* has three degrees:
   a. *bayna bayna* (in between). To be pronounced as between pure /ʼ/ and the long vowel corresponding to the short vowel that precedes it.
   b. changed to the long vowel corresponding to the short vowel that precedes it:
      - *muʿmin* → *mūmin* (believer),
      - *biḥr* → *bīr* (a well).

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1. See *an-Nashr*, 1 / 216.
c. omitted as in sa\textsuperscript{altu} $\rightarrow$ saltu (I asked).

3. As regards the Qur\textsuperscript{anic} readers, some of them including al-Kis\textsuperscript{al}, Āṣim and Ḥamzah pronounce /\textsuperscript{\textcircled{h}}/ as mu\textsuperscript{haqq}q\textsuperscript{a}q\textsuperscript{ah}, while others, including Ibn Ā\textsuperscript{mir}, and Abū Ām\textsuperscript{r}, lighten it.

4. The Ḥijāzī dialect tends to lighten the hamzah; the Ḥijāzī people would say: sāl, wakkadtu, tawkidan, and al-wikāf for ḥis\textsuperscript{al}, ḥakkadtu ta\textsuperscript{kī}dān and al-\textsuperscript{ikāf} respectively \textsuperscript{2}.

5. "All sounds are khafīf (light, i.e. lax) when sākin (vowelless), except the hamzah which becomes thaqīlah (hard)"\textsuperscript{3}.

B. The Rest of the Ḥalqī Sounds:

It is not normal to assimilate ḥalqī sounds with each other. However, Ṣibawayh mentions some cases where assimilation does take place\textsuperscript{4}, especially when a sound assimilates to the one that is articulated one stage forward than itself [glottal, pharyngeal, etc.] and vice versa. Examples are:

1. h / \textsuperscript{\textcircled{h}}

\textit{Si\textsuperscript{b}b\textsuperscript{a}w\textsuperscript{a}y\textsuperscript{h}} does not accept the progressive assimilation of / h / to / \textsuperscript{\textcircled{h}} / in the Qur\textsuperscript{ān}. He says: "They assimilate / h / in Sab\textsuperscript{bi}ḥ\textsuperscript{hu} (glorify him) to / \textsuperscript{\textcircled{h}} / to become [Sab\textsuperscript{bi}ḥ\textsuperscript{hu}]... This is not allowed by all qurrā\textsuperscript{5}.

\textsuperscript{2}See Blachere, Tarikh al-\textit{adab} al-\textit{Arab}i, 1 / 97.
\textsuperscript{3}Ibn al-Jazari, at-\textit{Tamhid fi 'ilm at-\textit{taj\textsuperscript{w}id}, 109.
\textsuperscript{4}al-\textit{Kitāb}, 2 / 413.
2. c / h:

\[\text{'iqṭa}c\, \text{hilālan} \rightarrow \text{'iqṭahhilālan (cut Hilāl)},\]

\[\text{'ijbāh cinabah} \rightarrow \ast \text{'ijba}c\text{cinabah} \rightarrow \text{'ajba}h\text{hinabah} \]

(face a grape),

\[\text{bīchū} \rightarrow \text{biḥhu (sell it)} \quad \text{[h/c} \rightarrow \text{ḥ]}.\]

3. c / ḥ:

\[\text{'imda}h\, \text{cArafah} \rightarrow \text{'imda}h\, \text{Arafah} \rightarrow \ast \text{'imda}c\text{cArafah} \]

(praise cArafah).

Dissimilation in these reported examples is much better than assimilation. This may be supported by the agreement among all qurrā to read faṣfaḥ cānhum without assimilating / ḥ / to / c / \text{[h/c} \rightarrow \text{ḥ]}. However, Abū cAmr is reported to have read fa man zuḥziṭa cān with assimilation as fa man zuḥziḍcān.

Analyzing these rejected examples in ḥalqī sounds (\text{[c/h} \rightarrow \text{ḥ]), it becomes clear that regressive assimilation is not allowed here while progressive assimilation is. The reason is not because, as Sibawayh says: "The more forward sounds do not assimilate to the more backward sounds" (among ḥalqī sounds). This reason, although it applies in some cases, is not always valid.

Two of the ḥalqī sounds are mufaxxa (partially emphasized): / x / and / ḥ /. The rest of the sounds are

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5. an-Nashr, 1 / 218.
6. an-Nashr, 1 / 291.
8. al-Kitāb, 2 / 413.
muraqqaq (non-emphatic). These sounds are apt to be pronounced with emphasis when occurring adjacent to other emphatic sounds, as in ʾaḥaṭtu (I encompassed) and al-ḥaqq (the right). However, this is prohibited in the field of Qirāʾāt.

II. ʿAṣṣāʾ al-fām sounds: /q, k, j/:

The sound /q/ assimilates to /k/ when pronounced contiguously as in yakhluq kum → [yakhlukkum] (he creates you), and even when separated by a short vowel, as in yunfiqīkayfa → [yunfikkayfa] (he spends as ...). In both cases, the /q/ must be preceded by a short vowel. The short vowel in between is suppressed before assimilation takes place: al-idghām al-kabīr. A suitable form for this may be represented as:

\[ q \rightarrow k / \nu \quad \text{(optional)} \]

This kind of assimilation occurs only across morpheme and word-boundaries because /q/ and /k/ do not combine in the same root.

As for the assimilation of /k/ to /q/, it occurs only across morpheme and word-boundaries for the same reason. An example of this type of assimilation is:

\[ ʾimsik quṭnan \rightarrow [ʾimsiqquṭnan] \] (catch cotton).

Again, the form for this type of assimilation may be represented as:

\[ k \rightarrow q / \nu \quad \text{(optional)} \]

The condition that both /q/ and /k/ should be
preceded by a short vowel before they may be assimilated to one another is occasioned by the syllabic structure of Arabic; two *sākins* cannot occur contiguously except in pause (as we have already seen in *idghām kabīr* above).

The sound */k/* of the feminine singular pronoun */ki/* is pronounced by some Arab tribes as */š/*. They would say *[minšī] (from you (f)), [calayšī] (on you (f)), and *[jidšūi] (your (f) neck) for *minkī*, *calaykī*, and *jidūkī* respectively.9 In Arabic Grammar, this is known as *kaškašah*. According to Sībawayh, it was a dialectal usage of *Tamīm* and *Asad*, according to Ibn Durayd, of Bakr, according to Ibn Jinnī, of *Rabī‘ah*, according to Ibn Fāris, of *Asad*, and according to as-Suyūṭī, of *Rabī‘ah* and *Muḍar*.10

The sound */j/* is reported to be assimilated to */š/* and */t/*. In *idghām kabīr*. The reported examples are:

- *yakhraja* šaṭ’ahu → [yakhraš šaṭ’ahu] (sends out (seed) its blade).
- *al-mācārij* ta’ruju → [al-mācārīta’ruju] (ways of ascent ... ascend).

*/j/* occurs in the Qur'ān before seventeen consonants (t, n, b, k, q, h, w, c, f, l, y, d, ḥ, ś, r, ṭ); it occurs contiguously with the first seven. */š/*, */y/*, */k/*, and */q/* are all close to */j/* in their place of articulation. However, there is no report at all of the assimilation of */j/* to */y/*, */k/*, and */q/*, in such cases as:

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9 Sīr ṣinā‘at al-irāb, 1 / 206-207.
10 Athar ikhtilāf al-jahājāt al-arabiyyah fi an-nahw, 546.


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\textit{akhraja yadahu} (he took his hand out),
\textit{yukhrijukum} (he expels you),
\textit{akhrij qawmaka} (take your people away).

The three sounds (q, k, j) have a secondary sound that is not accepted. Both /q/ and /k/ may be approximated to /j/. The resulting sound is disapproved of in traditional Arabic. The Arabs call this sound \textit{al-kāf aṣ-ṣammā}. As for the sound /j/, it may be approximated to /k/ or /ṣ/. Both resulting sounds are disapproved of in classical Arabic. When /j/ is approximated to /k/, the resulting sound is \textit{al-kāf aṣ-ṣammā} as above. On the other hand, when /j/ is pronounced forward of its normal place of articulation, (alveo-palatal), the resulting sound is between actual /j/ and /ṣ/; this is also disapproved of.\textsuperscript{11}

III. \textit{Wast al-fam} sounds (coronals):

A large number of sounds (fourteen) is ascribed to \textit{wast al-fam} (the center of the mouth). In a discussion of assimilation, it is probably more profitable to group them according to their manner of articulation. They may be articulated as stops, fricatives or sonorants.

1. \textit{al-Ḥurūf an-naṭṣiyyah} (Stops /t, d, t/):

a. /t/:

Being a non-sonorant coronal, /t/ assimilates only to non-sonorant coronals. It may thus be assimilated to eleven

\textsuperscript{11} See (\textsuperscript{-} 1.2.2.) above for these disapproved of secondary sounds.
sounds / j, ǧ, d, t, ș, S, z, ẓ, ḍ, ḍ, and ɵ / across word boundaries
and in one case within the same word, i.e. the iftāala form of
the verb, in which / t / is changed to / ẓ / or / d / in certain
circumstances. Some examples of this type of assimilation are
given below:

\[ t \rightarrow j : naḍījat juluţahuţ \rightarrow \{ naḍiţajjuluţahuţ \} \] (their
skins are roasted through).

\[ t \rightarrow ǧ : bi ṣarbaqatî şuhadā' \rightarrow \{ bi ẓarbaqatash ſuhadā' \} \] (with
four witnesses).

\[ t \rightarrow d : * ẓiztajara \rightarrow ẓizdajara. \]

\[ t \rightarrow ẓ : ẓigtaraba \rightarrow ẓigtaraba. \]

\[ t \rightarrow ș : ūaširat şuduruhum \rightarrow \{ ūaširaş şuduruhum \} \] (their
hearts restraining them).

\[ t \rightarrow s : nazalat sūratun \rightarrow \{ nazalasūratun \} \] (a sura came
down).

\[ t \rightarrow z : xabant zidnāhum \rightarrow \{ xabazzidnāhum \} \] (... it shows
abatement, we shall increase ...).

\[ t \rightarrow ẓ : wâlcādiyāti ẓabān \rightarrow \{ wâlcādiyādţabān \} \] (by
the (steeds) that run, with panting (breath)).

\[ t \rightarrow ș : kānat ẓālimatan \rightarrow \{ kānaţẓālimatan \} \] (it was
unfair).

\[ t \rightarrow ț : as-sayyiţati țālika \rightarrow \{ as-sayyițațţalika \} \] ((that are
good remove) those that are evil ... be that ...).

\[ t \rightarrow e : kaţţabat țamūd \rightarrow \{ kaţţabatețmūd \} \] (Thamud
does not believe).

A suitable form for such assimilations may be stated as
follows:
The sound /t/ occurs in the Qur'ān in similar situations before sonorant coronals but none of them is reported as having been assimilated. Some examples are:

al-ḥāyāti la'allakum (verses ..that you may),
qālat rabbi (she said: Oh my lord),
* futihat yajūju (Yajūj was opened).
malakat yaminuka (that your right hand gain).

/t/ of the form ʼiftāca and its derivations must change to /d/ or /t/:

1. to /d/ when it occurs immediately after /z/, /d/, /ʕ/:
   * Iztajara → Izdajara,
   * Idtaxala → Iddaxala,
   * Idtookara → Iddakara / Iddakara.

2. to /t/ when it occurs immediately after ʼitbāq sounds.
   * Ištabara → Ištabara,
   * Iḏtaraba → Iḏtaraba,
   * Iṯtala → Iṯtala,
   * Iḏtalama → Iḏtalama\(^\text{12}\).

\(^{\text{12}}\) See (2.2.1.1.2) above.
The only non-coronal sound that /t/ changes into is the glottal /h/ in the special case where /t/ is a singular feminine marker attached to nouns, tāʾ at-tāʾnīf al-marbūṭah, in pause: Fāṭimatu bintun → Fāṭimah. (F. is a girl) [t (f. m. n) → h in pause].

/t/ is a non-emphatic sound; therefore, it is pronounced non-emphatically even when it is adjacent to emphatic sounds, especially the homorganic /ţ/, as in taţyā (to exceed proper bounds).

b. /d/:

Being homorganic to /t/, the sound /d/ assimilates to non-sonorant coronals across word boundaries only. Some examples are:

d → j: laqad jāʾakum → [laqajjāʾakum] (already came unto you).

d → t: qad tabayyana → [qattabayyana] (already it becomes clear).

d → š: qad šayyafāhā → [qaššayyafahā] (truly hath he inspired her with violent love).

d → š: wa laqad šarrafna → [wa laqassaraffnā] (we have explained).

d → s: qad samica → [qassamicā] ((God) has already heard).

d → z: wa laqad zayyannā → [wa laqazzayyannā] (and we have adorned ...).

d → ţ: ṭinquad Ŧāliban → [ṭinquaṭṭāliban] (criticize a seeker).

d → q: qad qallu → [qaḏqallu] (they already go astray).
\[d \rightarrow \ddashdot{\text{fa qad } \ddashdot{\text{alama}}} \rightarrow [\text{fa qad} \ddashdot{\text{alama}}]\] (he wrongs ...).

\[d \rightarrow \ddashdot{\text{wa la qad } \ddashdot{\text{ara}^n\nu}} \rightarrow [\text{wa la qad} \ddashdot{\text{ara}^n\nu}]\] (we have made).

\[d \rightarrow \ddashdot{\text{yurid } \ddashdot{\text{eawab}}} \rightarrow [\text{yurid} \ddashdot{\text{eawab}}]\] (... desires a reward).

This may be represented in the following form:

\[
\begin{array}{c}
\text{+ consonant} \\
\text{- continuant} \\
\text{+ voiced} \\
\text{+ coronal} \\
\end{array}
\rightarrow
\begin{array}{c}
\text{+ consonant} \\
\text{- sonorant} \\
\alpha \text{ coronal} \\
\end{array}
\]

Similarly to /t/, the sound /d/ occurs before the sonorant coronals. However, assimilation does not take place.

C. /\ddashdot{t}/:

Having the feature of emphaticness, the sound /\ddashdot{t}/ assimilates only to its homorganic alveolar stops /d/ and /t/. Sibawayh accepts the assimilation of /\ddashdot{t}/ to /\ddashdot{d}/ also, as in /\ddashdot{jihib\ddashdot{t}\ddashdot{\text{d\ddashdot{\text{aliman}}} \rightarrow [\ddashdot{jihib\ddashdot{t}\ddashdot{\text{d\ddashdot{\text{aliman}}}] (come down as unfair). However, except in a few cases, the emphatic sounds do not assimilate to others, and even in these cases assimilation is mostly partial, not complete. This is because stronger sounds generally affect weaker sounds, and not vice versa; exceptionally /\ddashdot{t}/ may assimilate to both /d/ and /t/, as in:

\[\ddashdot{t} \rightarrow d : \ddashdot{jihib\ddashdot{t} \ddashdot{\text{d\ddashdot{\text{abbataka}}} \rightarrow [\ddashdot{jihib\ddashdot{t} \ddashdot{\text{d\ddashdot{\text{abbataka}}}] (bind your animal).

\[\ddashdot{t} \rightarrow t : \ddashdot{jihib\ddashdot{t} \ddashdot{\text{taysan}}} \rightarrow [\ddashdot{jihib\ddashdot{t} \ddashdot{\text{taysan}}}] (bind a billy goat).
In fact, the sound /t/ does not assimilate completely to either /d/ or /t/ but only partially. The emphatic feature remains so that /d/ and /t/ resulting from /t/ are pronounced with tafkhīm (emphaticness). However, Sibawayh mentions both kinds of assimilation, partial and complete, as being possible. 

2. Rikhwāh (fricatives):
   a. Ṣafīr (sibilants):

   Sibilants in Arabic are four, namely /s/, /ş/, /z/ and /ʒ/; the alternative terms used are whistling consonants, groove fricatives, or groove aspirants. The first three sounds are articulated alveolarly, while the sound /ʒ/ is articulated further back, in the alveopalatal position. Their respective manners of articulation may be distinguished from each other by three sets of features:

   1. Hissing / hushing :

      /s/, /ş/ and /z/ are described as hissing sibilants, and /ʒ/ as a hushing sibilant.

   2. Emphatic / non-emphatic :

      /ş/ is the only emphatic sibilant; the remaining sibilants are non-emphatic.

   3. Voiced / voiceless :

      The only voiced sibilant is /z/; the rest are all voiceless.

      Since the influence of the place of articulation in the phenomenon of assimilation is greater than that of manner of

\[13\] al-Kitāb, 2 / 418.
articulation, the hissing sibilants will be discussed as one group. The hushing sound / ū / will be discussed at a later stage.

A. al-ḥurūf al-asaliyyah (hissing sounds):

As we have seen earlier, the three sounds / s, ū, z, / do not occur in the same root. However, they do meet across word-boundaries. In this case, regressive assimilation may take place. A few examples are:

A few examples are:

\[ S \rightarrow z : \text{ạjlis Zaydan} \rightarrow [\text{ạjłizzaydan}] \text{ (have Zayd sit down).} \]

\[ S \rightarrow ū : \text{ạjlis Ŧābiran} \rightarrow [\text{ạjlış睠bıɾın}] \text{ (have Ŧābir sit down).} \]

\[ z \rightarrow s : \text{ụğriz sayfaka} \rightarrow [\text{ụğrissayfaka}] \text{ (stick in your sword).} \]

\[ z \rightarrow ū : \text{ạwjız Ŧālataka} \rightarrow [\text{ạwjışฐalıɾtaka}] \text{ (make your prayer short).} \]

\[ ū \rightarrow s : \text{ụfḥas Ŧāliman} \rightarrow [\text{ụfḥassăłı̇man}] \text{ (examine Ŧālim).} \]

\[ ū \rightarrow z : \text{ụfḥas Zaradah} \rightarrow [\text{ụfḥassaradah}] \text{ (examine Zaradah).} \]

Having the emphatic feature, the sound / ū / is stronger than both / s / and / z / . Even so, it assimilates completely to / z / , as in the example, given by Sibawayh: ụfḥaş
zaradah\textsuperscript{14}. It assimilates to it partially, becoming šād mušammāh (approximated to /z/) as in the word ašdaq (more truthful) \(\rightarrow\) [ašdaq]. This partial assimilation may also apply to /ṣ/ with /s/, as in the example: ʾifḥaš Ṣāliman.

The sound /s/ may often be pronounced as a pure /ṣ/ or as šād mušammah (/ṣ/ pronounced between pure /ṣ/ and /z/) when occurring before mustaṣṣil (emphatic/velarized) sounds within the same word\textsuperscript{15}. Some examples are:

\textit{ṣirāţ} \(\rightarrow\) ẓirāţ / Sirāţ (a way),
\textit{yabsutu} \(\rightarrow\) yabsuṭu / yabšuṭu (to spread),
\textit{saqr} \(\rightarrow\) šaqr / ẓaqr (a falcon),
\textit{ṣasbaya} \(\rightarrow\) ṣasbaya / ẓasbaya (to give),
\textit{saxxara} \(\rightarrow\) ẓaxxara (to subjugate).

The remaining emphatic sounds /ṣ/, /ḍ/, /ḏ/ do not occur with /s/ in the same root. al-Baṭalyawṣi adds /c/ as a condition for changing /s/ to /ṣ/, such as: \textit{misḍāc} \(\rightarrow\) miṣḍāc (split)\textsuperscript{16}.

However, if the original consonant in the root is /ṣ/, it does not change to /s/ because the emphatic nature of /ṣ/ cause it to dominate /s/. Thus ẓaxr (stone) is never pronounced (* saxr).\textsuperscript{17}

For the changing of /s/ to /ṣ/, the conditioning and

\textsuperscript{14} al-Kitāb, 2 / 418.

\textsuperscript{15} See al-Khaṣṣaṣ, 2 / 143, Sirr ẓinātat al-irāb, 1 / 220, al-Muzhir, 1 / 469, al-Hujjah lil-qurraṣ as-sab‘ah, 49-50, Durūs fi al-lughah al-‘Arabiyyah, 73, etc.

\textsuperscript{16} al-Muzhir, 1 / 467.

\textsuperscript{17} Ibid.
assimilated sounds need not be immediately adjacent, as in the following examples:

\[ sā'tīc / šā'tīc \] (shining),
\[ ḥasbāya / ḥasbāya \] (to give),
\[ masālīx / maʃalīx \] (slaughter-houses).

However, the conditioning sounds should occur after the assimilated one. If not, the assimilation is not likely to happen. The word qasat (became hard) for example is not pronounced \[ qaʃat \]. This result agrees with the phonetic rule of Arabic that the influence of a following sound on the preceding one is greater than in the opposite case.

A suitable rule for such a phenomenon may be as follows:

\[ +\text{consonant} \rightarrow +\text{consonant} \]
\[ +\text{continuant} \rightarrow +\text{continuant} \]
\[ -\text{voiced} \rightarrow -\text{voiced} \]
\[ +\text{hissing} \rightarrow +\text{hissing} \]
\[ -\text{emphatic} \rightarrow +\text{emphatic} \]

\[  \text{c} \quad \text{c} \quad \text{c} \quad (\text{optional}) \]

On the other hand, the sound \[ ʃ \] is pronounced as \[ ʃ /, \] a sound between pure \[ ʃ / and \[ z /, \] by assimilating \[ ʃ / to the voiced \[ z / \]. This is conditioned in most cases by being followed by \[ d / as in the word maʃdar \rightarrow masdar. This is called \[ əʃ-ʃād \text{ } \text{al-} \text{muʃam}māh \] and is regarded as an accepted secondary sound in Arabic.\(^{18}\) It occurs in the reading of Abū ġAmr and Ḥamzah. Some Arab dialects change it into pure \[ z / \]. These are said to be: ġUğrah, Kačb, Banū al-Qays, ṫay', and

\(^{18}\) See (1.2.1.1. - 4) above.
Kalb. Ibn Jinnī specifies the environment in which Kalb pronounce /s/ as /z/ as its occurrence before /q/ only as in: šaqr → zaqr.

B. Hushing:

The feature of tafašši (spreading, i.e. hushing) makes the sound /ṣ/ a strong sound which generally protects it from acquiring other features or being assimilated to other sounds. The only reported assimilation in this case is the reading of Abū cAmr of al-caršî sabīlā as [al-carssabīlā]. None of the qurrā reads it with assimilation except him, and none, including himself, assimilates /ṣ/ to other sounds. However, when /ṣ/ occurs sākin (vowelless) before /d/, it is sometimes pronounced as between /ṣ/ and /j/ [3], an accepted secondary sound in Arabic (see 1.2.1.1.3 above). Thus ḡašdaq may be pronounced as [әa3daq].

The sound /ṣ/ is one of five sounds that do not completely assimilate to others, although the others may assimilate to them. The remaining four sounds are /ḍ/, /r/, /l/, and /m/. Among the sounds to which /ṣ/ does not assimilate, although they assimilate to it, are /ṣ/, /ṣ/, /e/, /j/, and /d/, as in:

ṣaxraja šať'ahu → [ṣaxraššat'ahu] (a seed which sends forth its blade)

qad šayafahā → [qaššayafahā] (Truly hath he inspired her

---

20 Sirr ṣinā‘at al-‘rāb, 1 / 196.
b. *al-Ḥurūf al-ḥawā'iyah* (interdentals / ʂ, Ȣ, ɻ /):

Arabic has three interdental sounds which are:

1. voiceless non-emphatic interdental fricative: ɻ
2. Voiced non-emphatic interdental fricative: Ȣ
3. Voiced emphatic interdental fricative: ʂ

A regressive assimilation is optionally applied whenever one of the three interdental sounds follows another. Here are some examples:

- ɻ → ʂ: ʂib ʂae ʂālīka → [ ʂib ʂaddālīka ] (send that).
- ɻ → ɻ: ɻib ɻae ɻāliman → [ ɻib ɻaddāliman ] (send an unjust man).
- ɻ → ɻ: ɻuḍ ɻaawbaka → [ ɻueeawbaka ] (take your clothes).
- ɻ → ɻ: ɻuḍ ɻāliman → [ ɻuḍ ɻāliman ] (take an unjust man).
- ʂ → ʂ: ʂīḥfāf ʂālīka → [ ʂīḥfāfālīka ] (keep that).
- ʂ → ɻ: ʂīḥfāf ɻawbaka → [ ʂīḥfāfəawbaka ] (keep your clothes).

The most interesting coincidence within this group of sounds is that they all assimilate to non-sonorant coronals optionally whenever these sounds are at the end of the word and a non-sonorant coronal sound follows at the beginning of the next word. The following are examples of such assimilations:

- ɻ → t: labiṭum → [ labittum ] (you stayed).
- ɻ → d: ɻibḥaə dūnaka → [ ɻibḥaddūnaka ] (look below you).
- ɻ → t: ɻibḥaə ṭalabaka → [ ɻibḥattalabaka ] (look at your
request).

\[ \text{e} \rightarrow j : \text{lam yalbae jālisan} \rightarrow [\text{lam yalbajjālisan}] (he is still sitting). \]

\[ \text{e} \rightarrow \text{ṣ} : \text{ib cae dayfaka} \rightarrow [\text{ib cād dayfaka}] (send your guest). \]

\[ \text{e} \rightarrow s : \text{lam yalbæ sākitan} \rightarrow [\text{lam yalbassākitan}] (he is still silent). \]

\[ \text{e} \rightarrow \text{ṣ} : \text{ib cae šayxan} \rightarrow [\text{ib cāššayxan}] (send an old man). \]

\[ \text{e} \rightarrow \text{ṣ} : \text{ib cae Šābiran} \rightarrow [\text{ib cāššābiran}] (send Šābir). \]

\[ \text{e} \rightarrow \text{ṣ} : \text{ib cae Zaydan} \rightarrow [\text{ib cazzaydan}] (send Zayd). \]

\[
\begin{bmatrix}
+ \text{coronal} \\
+ \text{interior} \\
- \text{sonorant} \\
- \text{voiced}
\end{bmatrix} \rightarrow \left[ \begin{array}{c}
\alpha \text{coronal} \\
\alpha \text{sonorant} \\
\end{array} \right] \left/ \begin{array}{c}
\alpha \text{coronal} \\
\alpha \text{sonorant}
\end{array} \right] \ 	ext{(optional)}
\]

\[ \text{ǧ} \rightarrow j : \text{iḍ jaḍala} \rightarrow [\text{ijjjala}] (when he made). \]

\[ \text{ǧ} \rightarrow t : \text{ittaxaḍtu} \rightarrow [\text{ittaxattu}] (... (would that) I had taken...). \]

\[ \text{ǧ} \rightarrow d : \text{iḍidakara} \rightarrow [\text{iiddakara}] (he remembered). \]

\[ \text{ǧ} \rightarrow t : \text{xuḍ šayran} \rightarrow [\text{xuṭšayran}] (take a bird). \]

\[ \text{ǧ} \rightarrow s : \text{xuḍ šayyan} \rightarrow [\text{xuššayyan}] (take a thing). \]

\[ \text{ǧ} \rightarrow s : \text{muḍ sāḥah} \rightarrow [\text{muṣṣāḥah}] (an hour ago). \]

\[ \text{ǧ} \rightarrow \text{ṣ} : \text{xuḍ Šābiran} \rightarrow [\text{xuššābiran}] (take Sabir). \]

\[ \text{ǧ} \rightarrow z : \text{xuḍ Zaydan} \rightarrow [\text{xuzzaydan}] (take Zayd). \]
However, the feature of isticlič (emphaticness) is optionally retained when assimilating /q/ to non-emphatic sounds. Indeed it is recommended in some cases, as in example 'awacaštta above.

A suitable rule to cover this type of assimilation of interdental sounds may be represented as:

\[
\begin{aligned}
\{ + \text{coronal} \\
- \text{interior} \\
- \text{sonorant} \\
+ \text{voiced} \\
+ \text{emphatic} \}
\rightarrow
\begin{bmatrix}
\text{coronal} \\
- \text{sonorant} \\
\end{bmatrix}
/ \quad (\_)
\begin{bmatrix}
\text{coronal} \\
- \text{sonorant} \\
\end{bmatrix}
\]

( optional )
C. The sound /ḍ/:

The sound /ḍ/ is one of the most difficult sounds in Arabic. It contains two strong features: īṯbāq and istiṭālah (elongation). This is why it is considered as one of the sounds that do not assimilate to others although it does act as a conditioning sound. /ḍ/ is a homorganic of /s/ and /ʂ/, and /z/, although it does not assimilate to any of them.

There has long been some uncertainty, even in the early period, concerning the precise distinction between /ḍ/ and /ḏ/; however, /ḍ/ does not assimilate to what /ḍ/ assimilates to. This is because the feature of elongation prevents it acquiring the features of other sounds.

Many Arabic linguists have devoted works in both prose and verse, to the confusion of /ḍ/ and /ḏ/ in pronunciation, writing, or both. M. al-Muaibid lists eighty such works, of which some have been printed, some are still in manuscript, and a few are not known to be extant. 21

The sound /ʂ/ shares with /ḍ/ the feature of tafaṣṣī (spreading), as some linguists believe 22. This sharing explains

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22 Ibrāz al-maʿānī min birz al-ʿamānī, 753. In fact, istiṭālah, a feature associated with /ḍ/, and tafaṣṣī, a feature associated with /ʂ/, are close to one another.
why /ḍ/ assimilates only to /š/ in Abū ʿAmr’s reading of librāḍ šaʾnīhinim as [librāṣšaʾnīhinim] (for some of their activities).

The word ʾidṭajaḍa (to lie down or sleep) is reported as having been pronounced, much less commonly, as ʾiṭṭajaḍa with /ḍ/ assimilating to /ṭ/. Ibn Jinnī regards this as an exception. In fact, it is not an exception because it also occurs in Ibn Muḥayṣim’s reading ʾumma ḥattarruhu (then I force him...). The same word ʾidṭajaḍa is reported to have been pronounced exceptionally, as ʾiṭṭajaḍa with /ḍ/ changing into /l/. This does not occur in similar words such as:

\[
\text{muḍṭarib} \rightarrow [\ast \text{mulṭarib}] \text{ (confused)},
\]
\[
\text{muḍṭajir} \rightarrow [\ast \text{mulṭajir}] \text{ (worried)}, \text{ and}
\]
\[
\text{muḍṭabīṭ} \rightarrow [\ast \text{mulṭabīṭ}] \text{ (careful)}.
\]

3. Bayna shadīdah wa rikhwah (sonorants):

Arabic has three sonorant consonants, /l/, /n/ and /r/. They are among the six ʾalāqah sounds, which have been described as the most frequently used in Arabic. They are all articulated homorganically on the alveolar ridge. /n/ is a nasal sonorant or resonant, /l/ is a lateral sonorant, and /r/ is a trill sonorant. Both /l/ and /r/ are liquids.

a. /n/:

This sound is one of those that act as both assimilating and conditioning sounds. For details of the assimilation of this sound

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23 Sīr ṣināʿat al-irāb, 1/214.
24 al-Muḥtasab, 1/106.
to others, see [2.2.2.3] above.

b. /I/:  

The Arabic linguists and the scholars of *tajwīd* have discussed the various types of the sound /I/ in different positions. They discuss separately the /I/ of the definite article from /I/ that is found as the final consonant in words such as *hal*, *bal*, and *iṣmal*, and so on. The /I/ of the definite article is the same phonetically as the other /I/ but phonologically different.

The /I/ of the definite article assimilates to thirteen consonants that necessarily share with it the feature of coronality. (See 2.2.2.2 above)

The other /I/ assimilates to all homorganic consonants except /ṣ/ and /d/. It also assimilates to all interdental sounds articulated contiguously forward of its place of articulation, but not to any sounds articulated backward of its place of articulation, including /š/. These types of assimilation are optional and not as in the case of the /I/ of the definite article in spite of the similarity of its position particularly with the /I/ of *hal* and *bal*. /I/ does occur before both sounds /ṣ/ and /d/ in the Qurʾān across word boundaries, both contiguously and non-contiguously. Some examples are:

*quṣadaqa Allāh* (say Allah is right),

*wa yaṣmal šāliḥan* (.... and work righteousness .... ),

*naṣmal šāliḥan* (we work righteousness ....),

*rabbāna wa taqabbal ducā* (Our Lord, accept our prayer),

*wa qatala Dāwūdu Jālūta* (and Dāwūd killed Jālūt), and
'an yubaddila dīnakum (he may change your religion).
In none of these examples, nor in any others, is assimilation reported as occurring.

The assimilation of /l/ to sounds that are homorganic to it and to interdentals occurs across word boundaries, but not within the same word. Some examples of such assimilation are:

\[ \text{t}: \text{bal } \text{ṭaba}c\text{a} \rightarrow [\text{baṭṭaba}c\text{a}] \text{ (nay, (God) hath set the seal ...)} \].

\[ \text{s}: \text{bal } \text{sawwalat} \rightarrow [\text{bassawwalat}] \text{ (nay, but your minds have made up a tale ...)} \].

\[ \text{d}: \text{bal } \text{ḍallū} \rightarrow [\text{baḍḍallū}] \text{ (yet they stray)} \].

\[ \text{r}: \text{bal } \text{rafa}c\text{ahu} \rightarrow [\text{barrafa}c\text{ahu}] \text{ (yet (Allah) has raised him up)} \].

\[ \text{n}: \text{hal } \text{nadullukum} \rightarrow [\text{hannadullukum}] \text{ (shall we point out to you)} \].

\[ \text{š}: \text{bal } \text{šanantum} \rightarrow [\text{baššanantum}] \text{ (yet you think)} \].

\[ \text{š}: \text{yaf}c\text{al } \text{dālika} \rightarrow [\text{yaf}c\text{aššālika}] \text{ (let him do that)} \].

\[ \text{e}: \text{hal } \text{e}uwwiba \rightarrow [\text{hae}uwwiba] \text{ (will not (the unbelievers) have been paid back ...)} \].

\[ \text{z}: \text{bal } \text{zayyana} \rightarrow [\text{bazzayyana}] \text{ ( ... their pretence seems pleasing ...)} \].

The assimilation of /l/ to /r/ may occur whenever /l/ is preceded by a short or a long vowel, except when preceded by a long vowel and followed by a fatḥah /a/ marking naṣb. Here are some examples:

1. \[ \text{janzal} \text{a rabbukum} \rightarrow [\text{janzarrabbukum}] \text{ ( ... that your lord has revealed ...)} \],

2. \[ \text{rusulu} \text{ rabbika} \rightarrow [\text{rusurrabbika}] \text{ (we are messengers from} \].
your lord),
3. *qāla rabbunā* → *qārrabbanā* (he said: "our lord ... ")
4. *yaqūlu rabbunā* → *yaqūrrabbanā* (that they say: "our lord (is God)")
5. *sabīlī rabbika* → *sabīrrabbika* (the path of your lord)
6. *subūla rabbika* → *subūrrabbika* (the paths of your lord)
7. *qul rabbī* → *qurrabbi* (say: "my lord")
8. *fa yaqūla rabbī* → *fa yaqūrrabbi* (and he should say,
   O my lord ! ...), and *rasūla rabbihim* → *rasūrrabbihim*
   (the messenger of their lord)

Compare these environments:

1. a + 1 + a ≠ r → arr
2. u + 1 + u ≠ r → urr
3. ā + 1 + a ≠ r → ārr
4. ū + 1 + u ≠ r → ūrr
5. ɨ + 1 + i ≠ r → īrr
6. u + 1 + a ≠ r → urr
7. u + 1 ≠ r → urr
8. ū + 1 + a ≠ r → *ūrr

A question that may be raised is why Abū ʿAmr should differentiate between the eighth example and the rest, assimilating /l/ to /r/ in all except this one.

The answer to such a question is not easy. However, the following points may provide some hints.

1. In all of the examples except ≠ 7, the assimilation is in the form of *al-idghām al-kabīr*, which involves vowel deletion.
2. Deletion of the final vowel should only occur when there is no danger of ambiguity in the meaning of the sentence. Therefore, the naṣb marker will perhaps tend to be retained as having more necessity for grammatical discrimination than the other endings. On the other hand, no. 6 involves the deletion of a naṣb marker.

C. /r/:

The sound /r/ is one of the sounds that do not assimilate to others, although it does act as a conditioning sound. To Sibawayh, this assimilation does not occur even with its homorganic sonorants /l/ and /n/, on account of its being mukarrarah (a trill) 25. However, Abū ʿAmr in his reading assimilates /r/ to /l/ in both al-idghām as-ṣaghīr 26 (contiguous assimilation) and al-idghām al-kabīr 27 (non-contiguous assimilation). Some examples of his reading are:

\[\begin{align*}
\text{yūsfir lākum} & \rightarrow \text{yūṣfillākum} \quad \text{(He will forgive you ...)}, \\
\text{ḥiškur li} & \rightarrow \text{ḥiš kullī} \quad \text{(show gratitude to me)}, \\
\text{ṣṭharu lākum} & \rightarrow \text{ṣṭhallākum} \quad \text{((they are) purer for you)}, \\
\text{li yūṣfira lāk}a & \rightarrow \text{li yūṣfillāka} \quad \text{(that God may forgive you)}. \\
\end{align*}\]

If the sound /r/ occurs after a short or a long vowel and is followed by /a/ which is not acting as a naṣb marker, Abū ʿAmr assimilates /r/ to /l/, in the same way as /l/ to /r/. Some examples are:

25 al-Kitāb, 2/412.
26 an-Nashr, 2/12-13.
27 an-Nashr, 1/292, Kitāb at-taysir, 27.
1. **sakhkhara lanā → [sakhkhallanā]** (who has subjected these to our use ...),

2. **li yaghfira lanā → [li yaghfillanā]** (may he forgive us ...),

3. **al-fujjāri laff Sijjīn→ [al-fujjāllaff Sijjīn]** (surely the record of the wicked is in Sijjīn),

4. **wal-ḥamīra li tarkabūhā → * [wal-ḥamīllī tarkabūhā]** (...and donkeys for you to ride), and

5. **ḥinna al-ḥabrīra laff naqīm → * [ḥinna l-ḥabrīllī naqīm]** (truly the righteous will be in bliss).

**IV. Shafawiyyah (labials):**

Labial consonants in Arabic are three: two bilabials and one labiodental. This group of sounds does not have assimilation in common. In fact, two of them are sounds that do not assimilate to others although they do act as conditioning sounds. These two are /m/ and /f/. However, it is reported that al-Kisāf read **nakhsīf bihiṃ** (we could cause the earth to swallow them), assimilating /f/ to /b/; all other readers however, read it without assimilation.

However, **ikhfā** (a partial assimilation) is applied to the sound /m/ occurring before /b/ — /m/ does not occur vowelless before /b/ in the same root — , as in **yaqtāṣīm billāhi** (... holds firmly to Allah). The feature of nasality remains. On the other hand, when occurring before other sounds, dissimilation is applied. But again, it is reported that al-Kisāf assimilated /m/ completely.

The sound /b/ assimilates only to two front sounds, namely /m/ and /f/ such as **ḥirkīb maqānā →**
[Pərkəmənə] (ride with us), and [paw yaɡlɪb ʃa sawf] →
[paw yaɡhlɪfəsawf] (..... or gets victory – soon shall (we) .....).

A suitable form for the representation is:

\[
\begin{align*}
&\begin{bmatrix}
+ \text{consonantal} \\
- \text{continuant} \\
+ \text{interior}
\end{bmatrix} \\
&\quad \rightarrow \\
&\begin{bmatrix}
+ \text{consonantal} \\
+ \text{continuant} \\
\alpha \text{interior} \\
- \text{coronal}
\end{bmatrix} \\
&\quad \rightarrow \\
&\begin{bmatrix}
+ \text{consonantal} \\
+ \text{continuant} \\
\alpha \text{interior} \\
- \text{coronal}
\end{bmatrix} \\
&\quad \left( \text{optional} \right)
\end{align*}
\]

Qalqalah always occurs when the sound /b/ is sākin (vowelless); otherwise, the secondary rejected sound would result 28.

When /b/ occurs adjacent to emphatic sounds, as in baʃal (onion), baɁal (hero) and baʃila (to be stingy), it may be pronounced with some emphaticness by some people; however, this is not accepted. When it occurs initially, as in būra (pore) 29, and before /t/, it may be pronounced with some voicedlessness by some people; however, this is not accepted either.

V. General remarks:

We have established so far that the behavior of different sounds, with regard to assimilation, is not the same. Some sounds act as both assimilating and conditioning. Some do not assimilate to others although they do act as conditioning sounds. Some assimilating sounds assimilate to more sounds than do others. Some assimilating sounds assimilate to sounds articulated

28 See (1.2.2.- 8 above).
29 Ibid.
backward of their place of articulation, but they do not assimilate to those articulated forward of their place of articulation.

Concerning these differences in the behavior of different sounds, we shall here consider the views of the early Arabic linguists.

1. Sibawayh makes some statements concerning the fact that famawi sounds assimilate more readily than do halqi sounds.

   a. "mā kāna qāraba jilā ṣurūfi al-fām kāna qaqwā cālā al-idghām"\(^{30}\) (Sounds closer to the mouth are more inclined to assimilate),

   b. "ṣaṣlu al-idghāmi li ṣurūfi al-fāmi li ḥannahā ṣakṭharu"\(^{31}\) (Assimilation originates with the oral sounds because they are greater in number), and

   c. "lām takun ḥurūfu al-ḥalqi ašlan lil-idghāmi"\(^{32}\) (Assimilation does not originate with throat sounds).

   How accurate are these statements?

   It is clear that the famawi sounds are greater in number and assimilate more frequently than the halqi sounds. The statistics are as follows:

   a. Only 6 consonants out of 26 are halqi, and only 7 cases of assimilation out of the total number of 98 occur among the halqi sounds,

   b. 17 consonants out of 26 are famawi, and 89 cases of

---

\(^{30}\) al-Kitāb, 2/ 412.

\(^{31}\) al-Kitāb, 2/ 415.

\(^{32}\) al-Kitāb, 2/ 413.
assimilation out of the total number of 98 occur among the
famawi sounds. 33

C. 3 consonants out of 26 are shafawi, and 2 cases of
assimilation out of the total number of 98 occur among the
shafawi sounds.

Sibawayh's statements appear quite consistent with those
statistics.

2. Regarding the direction of assimilation and the place of
articulation of assimilated and conditioning sounds:

A. The predominant direction of complete assimilation is
regressive, which seems to support Sibawayh's statement:

"\( \text{\'al\textsubscript{a}\text{\textalpha}l-\text{idgham\textsubscript{a}} \text{\textyan} \text{yudghama \textit{al-awwallu} \text{\textff} \text{\texttt{al-\textdappa\textkha\textr}}} \text{\texttt{a}} \text{\texttt{a}} \text{\texttt{a}} \)"

(Basic assimilation is that of the first to the second).

B. A sound may assimilate to homorganic sounds, sounds
articulated forward of it, or sounds articulated backward of it.

From the material that we have examined, it appears that:

In 17 cases out of a total of 98, the direction of assimilation is
forward ( \( \leftarrow \) ).

In 35 cases out of a total of 98, the direction of assimilation is
backward ( \( \rightarrow \) )

In 42 cases out of a total of 98, assimilation is homorganical.

This result contradicts Sibawayh's statement that: "\( \text{\textit{al-aqrabu \text{\textyan\textl\texta\textm\texti\textl\texta\textm\textl\textw\textg\texth\textm\textu}} \text{\textff \text{\texttt{al-La\textdappa\textdappa\textkha\textr}}}} \text{\texttt{a}} \text{\texttt{a}} \text{\texttt{a}} \)". (a front

33 The ikhf\textsubscript{a} (partial assimilation) of /n/ is not counted here.

34 al-Kit\textsubscript{a}b, 2 / 421.

35 al-Kit\textsubscript{a}b, 2 / 413.
sound does not assimilate to one articulated backward of it). An example of sounds not assimilating to those articulated backward of themselves is:

\[ \text{h} \rightarrow \text{h} \text{ but not } * \text{h} \rightarrow \text{h} . \]

The result, showing that assimilation is greater between homorganic sounds, supports ad-Dānī’s statement: "\text{wa kullamā taqārabat al-makhāriju wa tadānat kāna al-idghām u ḥaqwā"}36 (The closer the places of articulation, the stronger the assimilation).

Again, it is clear that back ṭamawī sounds (aqṣā al-lisān) do not assimilate to ḥalqī sounds at all. Sibawayh says: "ḥurūfu al-lisāni lā tudghamu fi ḥurūfi al-ḥalqī"37 (Back [tongue] sounds do not assimilate to ḥalqī sounds).

3. According to ad-Dānī38, the sounds that do not accept assimilation to others are eight in number, namely s, š, ġ, r, f, m, and w. He probably meant that these sounds do not commonly accept assimilation, since, as we have seen earlier,39 some examples are reported.

In fact, it is not easy to give the reason behind the behavior of certain sounds with regard to assimilation. The principle of phonological strength, that stronger sounds are not affected by weaker ones, provides an explanation in some cases.

"Strong" features are plosiveness, voicedness, istiqlā'

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36 Kitāb al-idghām, folio 6.
37 al-Kitāb, 2 / 415.
38 Kitāb al-idghām, folio 7.
39 Sibawayh mentions only four of them, namely - r, š, f, and m-. al-Kitāb, 2 / 412.
(velarisation, i.e. emphaticness), *tafaṣṣī* (spreading), *istiṣālah* (lengthening), and *qalqalah*. The opposites of these features are continuousness, voicelessness, *istiğāl* (non-emphaticness), non-*tafaṣṣī*, non-*istiṣālah*, and non-*qalqalah* respectively.

Phonological strength, however, does not always apply in assimilation. For instance, the sound */t/ is the strongest sound among the emphatic sounds, having all the strong features. Despite this, it does assimilate to other sounds, as well as being a conditioning sound. On the other hand, the sounds */s/ and */ṣ/ for example, although weaker than */t/, have nonetheless been listed among sounds that do not accept assimilation to others.

It is true that the features *tafaṣṣī* (spreading), *takrīr* (trillity), and *istiṣālah* (lengthening) of */s/, */r/ and */ḍ/ respectively, provide good protection for these sounds against the acquisition of the features of others.

Another explanation may be the "difficulty" of certain sounds that tends to give them power over others. */ḍ/ for example, is described as a "difficult" sound.

4. In comparing the influence of the place and the manner of articulation on assimilation, it is clear that the influence of the former is greater than that of the latter. Sounds that assimilate to each other may be articulated homorganically or contiguously. It is less common for non-contiguously articulated sounds to assimilate. However, the assimilation of the definite article and the assimilation of final *sākin* */n/ are exceptions to this.
However, the influence of the manner of articulation is greater than that of the place of articulation in preventing assimilation. One reason for this is that no two sounds are the same in all features, although they may share the same place of articulation.

It is noteworthy that, of the 98 instances of assimilation referred to, most of which are taken from Qur'anic examples in works on qirāt, 68 occur with six sounds only, namely t, d, e, ẓ, ɣ, and l. Each of the first five assimilates to eleven other consonants, and /l/ assimilates to thirteen consonants.

Why does this group of sounds assimilate to more sounds than others?

It is difficult to categorize them as one group since they have no distinguishing features common to all of them. However, a fairly obvious explanation may be offered for the frequency of some of them:

Four of the sounds occur frequently in a final position, with sukūn, in Arabic:

1. /t/ as a tā'at-ta'niyya (the feminine marker /t/) in the 3rd person singular of the mādī of the verb.
2. /d/ in the particle qad (of different meanings).
3. /ṣ/ in the conjunction ʿay (since, when).
4. /l/ in the particles hal (interrogative) and bal (no, rather).

/l/ as an element in the definite article, of course, accounts for a great deal of its frequency, in any case.

Some of these, notably qad, ʿay, hal, and bal occur with
particular frequency in the Qurʾān.

It is difficult to provide an explanation for the frequency of assimilation of the remaining two sounds /e/, and /ə/. In fact it is strange for the sound /ə/ to assimilate at all, since it has the feature of emphaticness. The fact that it does assimilate runs counter to the tendency in behavior of emphatic sounds noted previously.

5. The behavior of Arabic sounds with regard to assimilation is unlike that of English even within the same phonetic environment. For example, the alveolar stops in Arabic /t/, /d/ and /t/ do not assimilate to non-coronal stop sounds [d/t/t → b/k] while on the other hand, the English /d/ and /t/ assimilate in rapid speech to labial /b/ and velars /k/ and /g/ as in:

Good-bye → Goob-bye
Good boy → Goob-boy
Right corner → Righk-corner

6. Istiqlāl: (raising, velarisation, i.e. pharyngealisation)

Istiqlāl sounds are /ʃ/, /q/, /t/, /t/, /q/, /k/, /x/, and /ɣ/. The first four are called ʾišbāq sounds.

The feature of istiqlāl is a strong one that influences the neighboring sounds. As an example, the vowel /a/ and its counterpart long vowel /ā/ may be pronounced as mufakhkham /a/ and /a/, when articulated adjacent to

emphatic sounds as in the word /ṣalāt/ (prayer) → [ṣalāṭ].

The strength of the emphatic sounds decreases in the following progression: t, q, s, ɣ, q, ɣ, and x. The first four, which are called muṭbaqah, have complete emphaticness, while the remaining three have only partial emphaticness. On the other hand, all mustafīl (lowered) sounds are non-emphatic, except for /l/ and /r/ which are emphasized sometimes in certain circumstances.

The feature of emphaticness is a distinguishing one especially in the Iṭbāq consonants where a non-emphatic counterpart is found for three out of four.

<table>
<thead>
<tr>
<th>emphatic</th>
<th>non-emphatic</th>
</tr>
</thead>
<tbody>
<tr>
<td>ṣ</td>
<td>s</td>
</tr>
<tr>
<td>ɣ</td>
<td>ɣ</td>
</tr>
<tr>
<td>š</td>
<td>št</td>
</tr>
</tbody>
</table>

The only muṭbaq sound that has no non-emphatic counterpart is /ḍ/.

The degree of emphaticness among the emphatic consonants depends on the environment. There are five degrees of emphaticness, in descending order:

1. Emphatic consonants + ā : as Ṭāriq (a man's name),
2. emphatic consonants + a : as šaluḥa (to be good),
3. emphatic consonants + u : as qutila (he was killed),
4. emphatic consonants + c : as ǧībir (be patient), and
5. emphatic consonants + i : as šidq (truth).

41 Ibn Jinni's view is that /ḍ/ is stronger than /ṭ/. (See al-Munṣil, 2 / 328).
/ 1 /:

/ 1 / is a mustafil sound (lowered, i.e. non-emphatic). However, it becomes an emphatic consonant in certain circumstances:

1. In the word Allāh and Allāhumma, except when preceded by / i / or / ɪ /. Some examples are:
   - Allāhu rabbi (God is my lord),
   - ḥāḏā cAbdu-ţāh (this is Abdullah),
   - ẓibudū-ţāh (worship God),
   - ra’aytu cAbda-ţāh (I saw Abdullah),
   - ḥāḏāni cAbdā-ţāh (these are Abdullahs),
   - min cAbdi Allāh (From Abdullah), and
   - min cābidi Allāh (from the worshippers of Allah).

2. Warsh read it as emphatic / ɿ / when followed by / a / or / ā / and preceded by ş, š, or ġ whether immediately or separated by the short vowel / a / 42, as in the following examples:
   - muşallā → [muşallā] 43 (a place of prayer),
   - ʿağlama → [ʿağlama] (to become dark), and
   - ʿat-ţalāq → [ʿat-ţalāq] (divorce).

   The remaining qurrā read / ɿ / in this case as a non-emphatic sound.

3. It is reported that / 1 / was read with emphaticness when occurring between two high consonants as in these examples:

42 an-Nashr, 2 / 111, and at-Taysir, 58.
43 The doubling of the / 1 / makes no difference to the effect.
Ibn al-Jazarî said: "It is better to pronounce /l/ as muraqqqaqah (non-emphatic) particularly when adjacent to an emphatic phoneme" 45. He cites some examples:

Jaçala Allâhu (God made),

al-latîf (the polite one), jîxtalaţa (to be mixed up), and lasallâţahum (you have given them power over you ..).

Concerning the function of the emphatic /l/ in classical Arabic, and whether it is an independent phoneme or just an allophone of the normal /l/, C. Ferguson and S. Al-Anî hold the view that the emphatic /l/ is an independent phoneme and not an allophone of the phoneme /l/ 46. Ferguson came to this conclusion through using minimal pairs with the word Allâh and phonologically similar words. However, he ignores morphological functions in his examples. The two minimal pairs he cites are:

1. wallâhu (and God),
   wallâhu (he appointed him).

The two units seem to be the same in shape, although they are not, since each of them in fact contains two separate words, which are completely different in either case. The first consists of wa- (and) and -Allâh (God). The second consists of wallâ- (he

44 an-Nashr, 2 / 115.
45 an-Nashr, 1 / 221.
appointed) and -hu (him). So in this minimal pair, there is no evidence that the emphatic /I/ is an independent phoneme as Ferguson claims.

2. wallāhi (by God),

    wallāhi (and the one who amuses).

    Again these words are not minimal pairs. The two words differ in two sounds since their final sounds also are different.

    We may conclude that the emphatic /I/ is an allophone of the actual /I/. The word Allāh is an exception.

    Pronouncing the /I/ of Allāh as non-emphatic is a kind of assimilation. This is because of the fact that kasr (i sound) and tafkhīm (emphaticness) are opposed. This is why the emphatic consonants have a lesser degree of emphaticness when followed by /l/ than when followed by other sounds, as we have seen previously. Furthermore, we will see later in the sub-chapter on īmālah how the emphatic consonants prevent īmālah.

/ r /:

    Unlike /I/, / r / is an emphatic sound in most cases. It is pronounced as a non-emphatic sound in the following cases only:

1. When followed by kasrah /i/ or ālī, no matter what the preceding sound is. The Arabic linguists and the qurrā' agree in this case. Some examples are:

    rijzan (a plague),

    bariḥa (to remain), and

    būrika (to be blessed).

    A suitable form for this case may be represented as:
2. When it occurs after /i/ or /ɪ/ and is not followed by an *istiqlāʾ* sound. Some examples of this *muraqqaqah* /r/ are: *miryah* (doubt), *šircah* (a law), and *Fiḍawn* (Pharaoh).

   However, when an *istiqlāʾ* sound occurs after it in the same word, this /r/ is pronounced as *mufakhkhamah* (emphatic) as in: *qiṭṭās* (paper), and *miṣādan* (a watch-tower).

   The form for this case may be represented as:

   \[ \begin{array}{c}
   + \text{trill} \\
   + \text{emphatic}
   \end{array} \rightarrow \begin{array}{c}
   + \text{trill} \\
   - \text{emphatic}
   \end{array} / \begin{array}{c}
   i \\
   i
   \end{array} \rightarrow \begin{array}{c}
   + \text{consonantal}
   \end{array} \]

3. When it occurs finally after /i/ or /ɪ/ as in: *xabir* (well acquainted), and *munhamir* (pouring forth).

   The *istiqlāʾ* sound does not influence /r/ when it occurs initially in the following word as in *faṣbir ṣabran jamīlan* (...) maintain a patience that is beautiful).

   The form for this case may be represented as:

   \[ \begin{array}{c}
   + \text{trill} \\
   + \text{emphatic}
   \end{array} \rightarrow \begin{array}{c}
   + \text{trill} \\
   - \text{emphatic}
   \end{array} / \begin{array}{c}
   i \\
   i
   \end{array} \rightarrow ( - ) \]

4. When it is separated by one or even more consonants from a
preceding /i/. This case is mostly associated with the reader Warsh in the following circumstances:

a. The separated consonant is not an istiqlal’ one, as in:
   ḫisraftahum (their heavy burdens), and miṣran (Egypt); with the exception of the sound /x/, as in ḫixrājā (taking something away), which he reads with Tarqīq (non-emphaticness).

b. It is not followed by an istiqlal’ sound, even distantly, as in ḫiqrafādan (shunning);

c. It is not repeated, as in midrāfan (in abundance) and ḫisrafāran (insistence);

d. It is not in an ʿaṣjamī word (foreign), as in ʿibrāhīm (Abraham) and ʿilmfān (Imran).

This case has also some exceptions, according to Makkī Ibn Abī Talib47, such as: ṣifrūn (twenty), ʿibrah (example instructive), wizf (heavy load), and ḥisraftahum (their warning).

The sound /r/ is pronounced as emphatic elsewhere, such as when followed by /a/, /ā/, /u/ or /ū/: as in qarva (to read), qaruba (to be near), and ʿurūfa (deception).

The muraqqaqah (non-emphatic) /r/ is an allophone of the emphatic / ṭ:/ and not a separate phoneme.

Finally, all other mustafil (non-emphatic) consonants are pronounced as muraqqaq. The scholars of tajwid, according to Ibn al-Jazari, advise all readers not to emphasize mustafil sounds even when they occur close to emphatic sounds.

47 Kitāb al-kashf an wujūh al-qirāʾāt as-sab, 1 / 211-212.
3. 2. Vowels

3.2.1. Introduction:

The vowels of Arabic will, in general, be discussed here alongside the two semi-vowels, i.e. glides, / y, w /, because vowel and semi-vowel are discussed together in classical Arabic, and because of the interchangeability between the two, especially between glides and long vowels.

Arabic has three primary long vowels and three primary short vowels, in both deep and surface structures. The claim made by M. Brame that: "There do not exist long vowels in underlying representations" ¹ is not entirely correct. Most long vowels are indeed the result of regular phonological changes. However, there still remain some long vowels that may be considered as purely long in surface structure as well as in deep structure. This is supported by the fact that the long vowel / ā / for example, occurring in some bi-radical roots, is a purely long one in deep as well as in surface representation. Ibn Jinni says: "In most ḥurūf where alif (ā) is the last letter, as in mā, lā, hayā, ḥillā, ḥattā, kallā, and so on, such alifs are ḫusūl, not zawā'id (appendages) or the result of changes from other letters. The indication that they are not appendages is the fact that appending constitutes some form of taṣarruf or of ishtiqāq in a word; none of these ḥurūf is mutaṣarrif or muṣṭaqq.²

The long vowel / ā /, when occurring as a second or third

² Sirr sinā'at al-ʿrāb, 2 / 653.
radical in words that are mutaṣṣarif, derives from an original / w / or / y /. The likelihood of its originating from / w / is much greater than from / y /. Ibn Jinni says: "The alif is regarded as coming from wāw when occurring as cayn (second radical) in default of the other evidence to prove that it comes from ya3. Do you not see how frequent is the type of tawaytu, šawaytu, rawaytu, hawaytu, and zawaytu (I folded, roasted, brought water, collected, and contracted respectively) and how rare is that of ḥayaytu (I lived) and cayaytu. (I was unable to...")3.

Here are some notes regarding the vowels in Arabic:
1. There is some dispute among Arabic linguists as to whether the short vowels derived from the corresponding long vowels or vice versa. Most hold the former view.

Vowels do not occur in certain environments:
a. Four short vowels never occur within the same root: * Cv Cv Cv Cv. However, they do occur across morpheme boundaries, as in darabahu (he hit him). They also occur in a few words when the long vowel is shortened for some reason such as metrical license, as in culabiṭu from culābiṭu.
b. Vowels never occur initially: * v * ṣ.
c. Two vowels never occur contiguously. *vV *vV *vV *vV.

2. The long vowel / ū / does not occur in the final radical position in noun forms. The only exception is / ǧū / (the one who) in the dialect of Tay3 and the so called "six nouns" [paḫū (brother), paḫū (father), ḫamū (father-in-law), fū (mouth),

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3 al-Munṣif, 2 / 140-141.
дар (possessor), and hans (penis), in iḍāfah. Abū ʿUmmāl's reading of alīf at-takfiḥ as in [ar-ribā'] for / ar-ribā' / may be included here. On the other hand, / ā / occurs frequently in the final radical position in verbs, as in yadāđu (to pray), yakhli (to be alone).

3. The ease of articulation does not necessarily influence the frequency of vowels. The vowel / i / is easier to articulate than the vowel / u /. However, triliteral words having two / i /s, such as jibil (camels) are less common than triliteral words having two / u /s, such as cunuq (neck), tunub (tent rope) and suhud (insomniac).

4. In roots that have a ḥalqī sound as second or third radical, the vowel following the second radical in the muḏārisi is generally / a /, as having a similar place of articulation, as in yaswalu (to ask), yaqrāju (to read), yascaru (to fire), yaqracu (to hit), and yasbaḥu (to swim).

Regarding the occurrence of glides in Arabic, the following conditions obtain:

A. Glides may occur:
   1. initially as in waçada (to promise) yabisa (to be dry),
   2. finally as in dalw (bucket) ġaby (gazelle),
   3. intervocalically as in dacawāt (invitations), laqiya (to

\[\text{al-Muḥtasab, 1 / 142.}\]
\[\text{al-Khaṣās, 2 / 143.}\]
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meet),
4. between vowel and consonant as in Fir\textsuperscript{aw}n (Pharaoh), sayr (walking), except for the sequences - iw+ C - and - uy + C :
* qi\textit{w}l (saying),
* mu\textit{ys}ir (wealthy).
However, when the combinations / iw and uy / are followed by another vowel, this occurrence is accepted as hi\textit{wal} (change) and cu\textit{y}ab\textit{ah} (faulty);
5. between consonant and vowel as in ya\textit{c}war (one-eyed) and ya\textit{by}a\textit{d} (white).

B. When a vowel precedes its corresponding glide, the result is a long vowel.
i+ y \rightarrow i
u+ w \rightarrow ū

C. Because the long vowel / i / is not identical with the glide / y /, or / ū / with / w /, gemination does not take place when the long vowel precedes its corresponding glide either within the same word or across word boundaries, e. g. yu\textit{c}\textit{t}i Yā\textit{s}ir (Yāsir gives) and ya\textit{d}cū Wā\textit{j}id (Wājid invites).

Assimilation takes place between the three types of sound, long vowels, glides, and consonants, as follows:
1. long vowels assimilate to vowels,
2. long vowels assimilate to glides,
3. glides assimilate to long vowels,
4. glides assimilate to glides,
5. glides assimilate to consonants,
6. consonants assimilate to glides, and
7. consonants assimilate to long vowels.

1. Long vowels assimilate to vowels:

1. /ä / in the active form of fācāl becomes /u / in the passive form of it, such as in: bāyača (accept someone to be a leader) → būyiča (to be accepted as a leader), and ǧāraba (to fight with someone) → ǧūriba (to be fought).

2. /ū / assimilates to /i / in diminutive form, such as: cūšfūr (sparrow) cūšayfūr (a small sparrow).

2. Long vowels assimilate to glides:

A final high long vowel becomes a corresponding short vowel plus glide: * marmūy → marmiyy (thrown, shot); the dual form of yazū (to fight) is yazuzuwan (they fight), and the nasb of yazū is yazuzuwa. The dual form of yarmī (to throw) is yarmiyan, and the nasb of yarmī is yarmiya. Likewise, nouns ending in /i / such as al-qāḏī (the judge), change to /iya / in the nasb, as al-qāḏiya.

3. Glides assimilate to long vowels:

1. When a glide occurs between two identical short low vowels, it combines with the two vowels to form a long low vowel. This may be represented in the following form:
These are some examples:

* qawala → qāla (to say),
* bayaca → bāca (to sell),
* ḫtawada → ḫtāda (to become accustomed), and
* ḫinqawada → ḫinqāda (to obey).

There are two exceptions to this rule:

a. when the glide is the central radical in a noun form:
   hayaf (slenderness),
   ḫawal (squint), and
   cawar (being one-eyed).

b. (only with /w/) when the glide is the central radical in the iftacala form of verbs indicating shared activity, as in:
   ḫjtawaru (to be neighbors), and
   ḫhtawašu (to fight each other).

2. When a glide occurs between a consonant and a short low vowel, it combines with that vowel to form a long low vowel. Again, this may be represented in the following form:
The following are some examples:

* َلاَقِمَا → ُلاَقِمَةَ (to raise),
* َيِسْتَاقِمَا → ُيِسْتَاقِمَةَ (to be straight),
* َيِبَيْناَ → ُيِبَيْنَةَ (clearness).

The only exception is ِلَفَقِالٌ َاتْيَفَالٌ (the َلَفَقِالٌ of superiority), e. g. ُعَبْيَانِ (more clear), and ُعَحْوَانِ (easier).

3. A round glide combines with the short vowel following it to form a long high round vowel when occurring between a consonant and a short high round vowel. This may be represented in the following form:

Some examples are:

* ِيَاقْوُلِلِ → ِيَاقْفِلِ (to say),
* ِيَاشَوْمِ → ِيَاشَفِلِ (to fast).
form a high non-round long vowel when preceded by a high
non-round short vowel and followed by a consonant. This may
be represented in the following form:

\[
\begin{bmatrix}
- \text{consonantal} \\
- \text{vocalic} \\
+ \text{round}
\end{bmatrix}
\rightarrow
\begin{bmatrix}
+ \text{vocalic} \\
+ \text{high} \\
+ \text{long} \\
- \text{round}
\end{bmatrix} / \begin{bmatrix}
+ \text{vocalic} \\
+ \text{high} \\
- \text{long} \\
- \text{round}
\end{bmatrix}
\]

w (in deep structure) \rightarrow [i] (in surface structure)

These are some examples:

* \text{*miwqāt} \rightarrow \text{miqāt} (season),

* \text{miwzān} \rightarrow \text{mīzān} (balance),

* \text{diwmah} \rightarrow \text{dimah} (continuous rain).

5. A round glide becomes a high non-round long vowel when it
occurs finally, preceded by a high non-round short vowel. This
may be represented in the following form:

\[
\begin{bmatrix}
- \text{consonantal} \\
- \text{vocalic} \\
+ \text{round}
\end{bmatrix}
\rightarrow
\begin{bmatrix}
+ \text{vocalic} \\
+ \text{high} \\
+ \text{long} \\
- \text{round}
\end{bmatrix} / \begin{bmatrix}
+ \text{vocalic} \\
+ \text{high} \\
- \text{long} \\
- \text{round}
\end{bmatrix}
\]

w (in deep structure) \rightarrow [i] (in surface structure)

Here are some examples:

* \text{yāziw} \rightarrow \text{yāzī} (fighter),

* \text{dāciw} \rightarrow \text{dāqī} (inviter).
6. A non-round glide becomes a high non-round long vowel when preceded by a consonant and followed by a high non-round short vowel. This may be represented in the following form:

\[
\begin{align*}
\text{consonantal} & \quad + \text{vocalic} \\
- \text{vocalic} & \quad + \text{high} \\
- \text{round} & \quad + \text{long} \\
\text{y} \quad \text{(in deep structure)} & \quad - \text{round} \\
\end{align*}
\]

Here are some examples:

* yabyicu → yabîcu (to sell),
* yahyimu → yahîmu (to fall in love).

7. A non-round glide combines with the short vowel preceding it to form a high round long vowel when preceded by a high round short vowel and followed by a consonant. This may be represented in the following form:

\[
\begin{align*}
\text{consonantal} & \quad + \text{vocalic} \\
- \text{vocalic} & \quad + \text{high} \\
- \text{round} & \quad + \text{long} \\
\text{y} \quad \text{(in deep structure)} & \quad + \text{round} \\
\end{align*}
\]

These are some examples:

* muyqin → mûqin (sure),
* muysir → mûsir (wealthy),
* țuybâ → țûbâ (gladness).
4. Glides assimilate to glides:

1. A non-round glide becomes a round glide in these cases:
   a. When a non-round glide occurs as the final radical in the *fa*ula form and is preceded by a high round short vowel. This may be represented in the following form:

   \[
   \begin{array}{c}
   \text{- consonantal} \\
   \text{- vocalic} \\
   \text{- round}
   \end{array}
   \rightarrow
   \begin{array}{c}
   \text{- consonantal} \\
   \text{- vocalic} \\
   \text{+ round}
   \end{array}
   \big/{\text{+ vocalic}}
   \begin{array}{c}
   \text{+ high} \\
   \text{- long} \\
   \text{+ round}
   \end{array}
   \]

   Here are some examples:
   * nahuya → nahuwa (to be intelligent),
   * qaḍuya → qaḍuwa (to be a judge).

   b. When a non-round glide as the final radical is preceded by a consonant and followed by a low non-round long vowel. This may be represented in the following form:

   \[
   \begin{array}{c}
   \text{+ consonantal} \\
   \text{- vocalic} \\
   \text{- round}
   \end{array}
   \rightarrow
   \begin{array}{c}
   \text{+ consonantal} \\
   \text{- vocalic} \\
   \text{+ round}
   \end{array}
   \big/{\text{+ conso}}
   \begin{array}{c}
   \text{+ vocalic} \\
   \text{+ low} \\
   \text{+ long}
   \end{array}
   \]

   Here are some examples:
   * taqyā → taqwā (godliness),
   * šaryā → šarwā (likeness),
   * fatyā → fatwā (fatwa; formal legal opinion),
   * dunwā → dunyā (near),
   * culwā → culyā (high).
However, a few exceptions are reported:

- *sasayā* (a name of place),
- *rayyā* (fresh, plump, (f.) of *rayyān*),
- *tāsyyā* (oryx calf),
- *quṣwā* (distant).

2. A round glide becomes non-round glide in these cases:
   a. When the two glides occur continuously regardless of their order. This may be represented in the following form:

   \[
   + \text{consonantal} \quad - \text{vocalic} \quad + \text{round} \quad \rightarrow \quad + \text{consonantal} \quad - \text{vocalic} \quad - \text{round} \quad \frac{y}{y}
   \]

   Here are some examples:
   - *saywid* → *sayyid* (leader),
   - *maywit* → *mayyit* (dead),
   - *taway* → *tayy* (concealment),
   - *šaway* → *šayy* (grill).

   A few exceptions are reported, among which are:

   - Haywah (a name of a man),
   - Cawayah (howling),
   - Daywin (male cat),
   - Daywam (long or hard day).

   b. When a round glide is preceded by a high non-round short vowel and followed by a low long vowel. This may be represented in the following form:

   6 *piya* as-sālīk, 4/ 282.
Here are some examples:

- *ëiwāb → ëiyāb (clothes),
- *riwāq → riyāq (lands),
- siwāt → siyāt (whips),
- šiwām → šiyām (fasting).

Some exceptions are reported, such as:
- siwār (bracelet),
- siwāk (a small stick used to clean the teeth),
- jiwār (neighborhood),
- liwāq (refuge).

c. Again, when a round glide occurs as a final radical and is preceded by a high non-round short vowel. This may be represented in the following form:

Here are some examples:
* raḍiwa → raḍiya (to be satisfied),
* cufiwa → cufiya (to be excused),
* yuziwa → yuziya (to be fought),
* šajīwwah → šajīyyah (worried (f.)),
* ẓāziwah → ẓāziyah (to strive).

D. The two glides may occur in a free variation, as in these examples:

šuwwām / šuyyām / šiyyām (fasting (pl.)),
nuwwām / nuyyām / niyyām (sleeping (pl.)),
maḥawtu / maḥaytu (I deleted),
yazawtu / yazaytu (I fought).

5. Glides assimilate to consonants:

1) Both glides assimilate to /t/ when they occur before it in the iftačala form. This may be represented in the following form:

\[
\begin{array}{c}
\text{- consonantal} \\
\text{- vocalic} \\
y, w \text{ (in deep struct.)}
\end{array}
\rightarrow
\begin{array}{c}
\text{+ consonant.} \\
\text{- continuant} \\
\text{+ voiced} \\
\text{+ coronal}
\end{array}
\bigg/ \bigg[
\begin{array}{c}
\text{+ consonant.} \\
\text{- continuant} \\
\text{- voiced} \\
\text{+ coronal}
\end{array}
\bigg]
\]

Here are some examples:

* ẓiwtasala → ẓitašala (to be connected),
* ẓiwtasa → ẓitaša (to be characterized by),
* ẓiwtazana → ẓittazana (to be consistent),
* ẓitasara → ẓitasara (to be easy) ⁷

⁷ In fact, this type involves a vowel assimilating a consonant. However, it
2. Glides are changed to /ɔ/ in two circumstances:
   a. When the glides /w/ or /y/ occur finally after /a/, they may be changed to /ɔ/. Again, this may be represented in the following form:

   \[
   \begin{array}{c}
   \text{- consonantal} \\
   \text{- vocalic}
   \end{array}
   \longrightarrow
   \begin{array}{c}
   \text{+ consonant.} \\
   \text{+ back} \\
   \text{- voiced} \\
   \text{- continuant}
   \end{array}
   \bigg/ \begin{array}{c}
   \text{+ vocalic} \\
   \text{+ low} \\
   \text{+ long}
   \end{array}
   \longrightarrow
   \begin{array}{c}
   \# \\
   \#
   \end{array}
   \]

   Some examples are:
   1. * samāw → samān (sky),
      * bināy → binān (building).
   2. * samāwa + kum → samā'akum (your sky),
      * bināya + hu → binā'a'hu (his building).
   3. * samāwan → samān (a sky),
      * bināyan → binān (a building).8

   b. Likewise, these glides may change to /ɔ/ when they occur after /ā/ and are followed by /i/, as in the ism al-fā'il of hollow verbs, and of some plurals of nouns the singular of which doubles a second-radical glide. e.g.
   * qāwil → qā'il (a speaker),
   * bāyi'c → bā'ic (salesman),
   * awāwil → awā'il (first people),
   * nayāyif → nayā'il (excesses).

   It is also claimed that the same thing occurs in the

   is listed here because yasara in the root the first radical is a glide.

   8 Glides, followed by a short vowel and tanwin, are still considered to be finals.
formation of the plural of nouns in the singular of which the glide is an element lengthening the second syllable, and not a radical, and which generally end in tā’ marbūṭah, e. g.

\[ \text{cajūz} \rightarrow \text{cajā'iz} \]

\[ \text{ṣaḥīṣah} \rightarrow \text{ṣaḥā'if} \]

This may be represented in the following form:

\[
\begin{array}{c}
\begin{array}{c}
\text{[ - consonantal ]} \\
\text{[ - vocalic ]}
\end{array} \\
\text{y, w}
\end{array}
\rightarrow
\begin{array}{c}
\begin{array}{c}
\text{[ + consonant. ]} \\
\text{[ + back ]} \\
\text{[ - voiced ]} \\
\text{[ - continuant ]}
\end{array} \\
\text{ā}
\end{array}
\rightarrow
\begin{array}{c}
\begin{array}{c}
\text{[ + vocalic ]} \\
\text{[ + low ]} \\
\text{[ + long ]} \\
\text{[ + high ]} \\
\text{[ - long ]} \\
\text{[ - round ]}
\end{array}
\end{array}
\]

However, it appears that this change is not attributable solely to the phonetic environment, since, in exactly similar circumstances, the glides may remain unchanged, e. g.:

\[ \text{ḥāwil} \] (imper. of ḥāwala), (try),
\[ \text{cāwir} \] (one-eyed),
\[ \text{cāyin} \] (imper. of cāyana) (inspect),

compare of:

\[ \text{ḥā'īl} \] (barrier),
\[ \text{cā'īr} \] (ophthalmia),
\[ \text{cā'īn} \] (flowing).

3) When the glide / w / occurs initially and is followed by Kasrah / i /, it changes to / ģ / in some Arabic dialects, according to Ibn Jinnī. Some examples are:
wisādah / ṭisādah (a pillow),
wičā / ṭičā (receptacle),
wisādah / ṭifādah (delegation),
wikāf / ṭikāf (a drip).10

This dialectal variation or free variation, as we may call it, also occurs, but less frequently, when / w / is followed by / u / or / a /. Some examples are:

a. wujūh / ṭujūh (faces)
wucida / ṭucida (to be promised)
wuqqitat / ṭuqqitat (... are appointed a time)
b. wajama / ṭajama (to be silent)
waḥada / ṭaḥada (one)
wanāt / ṭanāt (weakness).

The two forms may coexist with somewhat different meanings, e.g. muwaqqat (timed) / muʔaqqat (temporary).

It is also quite possible that the alternative root to which a variation is attributed may be an invention attributable to it, as with muwakkad / muʔakkad (sure).

6. Consonants assimilate to glides:

1. When two hamzahs occur initially and are separated by a short vowel, the second / ʾ / assimilates completely to / w / before / a / or / ā / in the plural form and in the diminutive form, e.g.:

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9 See al-Munsif, 1 / 228.
10 This is supposed to occur in the dialect of Tamimi. (See Y. Āl Suwār, Athar ikhtilāf al-lahajat al-arabiyyah fi an-naḥw, MA thesis, 548-551.)
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\( \ddot{d} \text{dami} \rightarrow \ddot{d} \text{awd} \text{im} \) (humans),
\( \ddot{d} \text{uqiyyah} \rightarrow \ddot{d} \text{awdq} \) (weights),
\( \ddot{d} \text{uwad} \text{im} \rightarrow \ddot{d} \text{uwayd} \text{im} \) (a small human).

2. When hamzah / \( \ddot{d} \) / occurs between two / \( \ddot{a} \) /s, it assimilates completely to a glide / \( y \) /, as in: * xafqj \( \rightarrow \) xafqjya (mistakes). This may be represented in the following form:

\[
\begin{array}{c}
+ \text{conson} \\
+ \text{contin.} \\
- \text{voiced} \\
+ \text{back}
\end{array}
\rightarrow
\begin{array}{c}
- \text{conson.} \\
- \text{vocalic} \\
- \text{round} \\
y
\end{array}
\rightarrow
\begin{array}{c}
+ \text{vocal.} \\
+ \text{low.} \\
+ \text{long}
\end{array}
\rightarrow
\begin{array}{c}
+ \text{vocal.} \\
+ \text{low.} \\
+ \text{long}
\end{array}
\rightarrow
\begin{array}{c}
+ \text{vocal.}
\end{array}
\]

7. Consonants assimilate to long vowels:

When a word begins with two hamzahs, the vowel in between and the second hamzah become a long vowel corresponding to the short vowel. These are some examples:

1. * ra'\text{mana} \rightarrow \ddot{r} \text{mana} (to believe),
   * ra'\text{adam} \rightarrow \ddot{r} \text{adam} (Adam).
2. * \ddot{r} \text{m\text{an}} \rightarrow \ddot{r} \text{im\text{an}} (belief),
   * \ddot{r} \text{al\text{af}} \rightarrow \ddot{r} \text{il\text{af}} (covenants).
3. * ru\text{tiya} \rightarrow \ddot{r} \text{itiya} (to be given),
   * ru\text{tumina} \rightarrow \ddot{r} \text{utumina} (to be trusted).

However, when the function of the first hamzah is to indicate the mu\text{d\text{ari}} or istif\text{ham}, optionally the second / \( \ddot{d} \) /
assimilates to /\text{\textbar} /, as in the following examples:

\textit{\text{\textbar}a\text{\textbar}in\text{\textbar}nu / \text{\textbar}ay\text{\textbar}in\text{\textbar}nu} (I groan)

\textit{\text{\textbar}a\text{\textbar}an\text{\textbar}d\text{\textbar}ar\text{\textbar}tah\text{\textbar}um / \text{\textbar}a\text{\textbar}n\text{\textbar}d\text{\textbar}ar\text{\textbar}tah\text{\textbar}um} (whether you warn them).
3. 2. 2. *Imālah* (Inclination):

3. 2. 2. 1: Definition and Introduction:

*Imālah* as defined by Ibn al-Jazari as well as by other scholars of *tajwīd* and grammarians is "*an tanhūwa bil-fatḥati nahwa al-kasrati wa bil-ʿalifi nahwa al-yāʾi*"¹ (imālah is the shift of /a/ to be close to /i/ and the shift of /ā/ to be close to /ī/). In other words, to pronounce /a/ and /ā/ as between actual low vowels /a/ and /ā/ and the high vowels /i/ and /ī/ respectively, producing central front vowels as a result.

The *alif* of imālah /ā/ is regarded by both Arabic linguists and scholars of *tajwīd* as one of the most *mustahsan* (acceptable) secondary sounds; it is in fact, the most frequently occurring.

The *fatḥah* of imālah /a/ is not listed among acceptable secondary sounds; however, it is accepted alongside its corresponding long vowel *alif al-imālah*. The reason for this omission is that the Arabic linguists speak about ḥurūf (consonants, glides, and long vowels) but not about ḥarakāt (short vowels). To them, the latter sounds are just parts of the former.

It has already been suggested that the imālah sounds may be transcribed as /e/ /ē/ and /E/ /ē/. The *imālah* with /e/ /ē/ is called *imālah shadīdah* or *maḥdah* (heavy or pure). The *imālah* with /E/ /ē/ is called *imālah khaffīfah* or *imālah bayna bayna* (light *imālah*, or

¹ *an-Nasr, 2/30*. See also *al-Kitab, 2/293* and *Sharḥ al-muḥaṣṣal, 9/53*. 
imālah in between). ad-Dānī prefers al-imālah al-khaffifah.

The imālah sounds are not independent sounds. They are only allophone of the low vowels / a, ā / . Imālah is optional; thus a speaker may pronounce the low vowels as middle vowels in specific circumstances, or not, as he wishes. To quote Ibn Yağish: "The circumstances of imālah make it optional and not compulsory... So all sounds occurring in imālah circumstances may be pronounced without imālah". The optional nature of imālah suggests that the / a, ā / sound is indeed the original sound, rather than the / e, ē /.

This question is widely discussed by scholars of tajwīd, most of them inclining to the view that fath or tafkhīm is the original. Ibn Yağish says: "at-tafkhīm is the original, and the imālah is ṭāriqah (derived)". This view is supported also by the a / ā sound's not being restricted to particular circumstances, as is the case with imālah. Thus, the a / ā sound is acceptable in all circumstances, but the e / ē sound is not. However some writers believe both fath and imālah to be original, and others,

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2 / e / ē / in this chapter should hereafter be taken to cover both kinds of imālah.
3 an-Nashr, 2 / 30.
4 Sharḥ al-mufassal, 9 / 55.
5 As well as being called al-fath, the a / ā sound is sometimes called at-tafkhīm or an-naṣb (emphatic or accusative).
6 Sharḥ al-mufassal, 9 / 54 See also an-Nashr, 2 / 32, where Ibn al-Jazari speaks about those who believe that the fath is the original. However, Ibn al-Jazari himself does not give his tarjih (preponderance) to either side, according to Makki Ibn Abī Ṭālib, al-Kashf, 1 / 198.
mostly modern, believe that fatḥ is the original in some cases and ɪmālah is the original in others. They generally restrict the originality of ɛ / ɐ to cases in which alif stands for yā, in deep structure, as, for example bāca, from the root byc.

ɪmālah does not involve any semantic or syntactic variation. ɪmālah results from the adaptation of articulation of a low vowel to a high vowel, under the influence of a preceding or following high vowel; it also results from the representation by alif of an original /y/. As will be seen later, the Arabs tend to pronounce /ɑ/ with ɪmālah if it represents /y/ in deep structure and with pure /ɑ/ if it represents /w/ in deep structure.

ɪmālah is discussed by most Arabic grammarians and scholars of tajwīd. Some devote whole books to this field, among whom are ad-Dānî, Makki Ibn Abī Ṭalib, Abū Shāmah, Abū al-Ḥasan al-Qaṣiḥ, and ʿAbd al-Fattāḥ Shalabi; others merely include a chapter on ɪmālah in their more general works, among whom are Sībawayḥ, Ibn al-Jazarī, az-Zamakhsharī, and Ibn Yaṣīshī. ʿAbū Amr ad-Dānī falls into both categories.

Ibn Jinnī does not have a separate chapter on ɪmālah, nor does he go into detail concerning it; he is, however the first

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8 For more details see Al-ɪmālah fi al-qirāʿāt wal-ḥahājāt al-ʿarabiyyah, 19-22.

9 Al-Kitāb, 2 / 262-271.

10 An-Nashr, 2 / 29-90.


12 Ibid.
Arabic linguist to mention *imālah* as a part of *al-idghām al-aṣghar*\(^{13}\).

A shift of the low vowels /a, ā/ towards the middle vowels may take place in either of two directions. It may be forwards, to approximate to /ī/ (*imālah*), or backwards to approximate to /ū/. This backwards shift is known as *tafkhīm*\(^{14}\). These shifts may be represented thus:

![Diagram showing vowel shifts](image)

These two phenomena are opposites, that is to say that they cannot occur at the same time. This opposition may explain the tendency of *imālah* not to occur in the dialect of Ḥijāz, which is the dialect best-known for frequency of occurrence of *tafkhīm*.

### 3.2.2.2. Asbāb al-imālah (The circumstances of *imālah*):

The shift of /ā/ upwards towards /ī/ is generally

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\(^{13}\) *al-Khaṣāṣī, 2 / 141.*

\(^{14}\) See (2.6.2.5 below).
conditioned by /i/, /ɪ/ or /y/. These dominating sounds may appear in surface structure, in deep structure, or in both. This shift is a kind of vowel harmony, especially in surface structure. The direction of influence in this type of assimilation may be either regressive or progressive. However the influence of the preceding high front vowel is greater than that of the following high front vowel".\(^{15}\)

The following circumstances of *imālah* are listed:

1. ā → ō / i —-

When *kasrah* /i/ occurs\(^{16}\) before /ā/, it may cause *imālah*. The separating segment/s between the two vowels may be:

a. one segment as in : *cimād* → *cimēd* (support), and *Nihād* → *Nihēd* (a girl's name),

b. two segments as in : *šimlāl* → *šimlēl* (small amount), and *jinsān* → *jinsēn* (human being).

In fact, an example with three separating segments is given by Sibawayh and his followers: *yaḏribahā* → *yaḏribahē* (that he hit her). This; however, is a *samāʿ*i case, not *qiyyāsī*. The reason for his accepting assimilation here is that /h/ is *khafīyyah* (not clearly heard). He accepts this *imālah* only with an intervening /a/ sound (i.e. the *nasb*). He says:

"There is no case of *imālah* of the *alif* when the verb is in *rafc* (with the vowel /u/) as *yaḏribuhā* → *(yaḏribuhē)*"\(^{17}\). Later Ibn Yaḍīsh considers *imālah* in

\(^{15}\) *Sharḥ al-muṣafāl*, 9 / 56.

\(^{16}\) Contiguous occurrence of two vowels is not found in Arabic.
From the previous discussion, it is clear that the separating segments may not be more than two, with the exception of the example given by Sibawayh. A form for this circumstance of imālah may be represented as:

\[
\begin{align*}
+ \text{voca.} & \quad \rightarrow \quad + \text{voca.} \\
- \text{low.} & \\
+ \text{long} & \\
- \text{high} & \\
- \text{back} & \\
\text{ā} & \\
\end{align*}
\]

In this circumstance, the scholars of tajwīd, in theory, follow the dictates of the grammarians. In practice, however, they do not always follow them. For instance, Ibn al-Jazari gives / jinsān / as an example of the intervention between / ā / and / i / of two segments, which, according to the grammarians, should produce imālah. In practice, the word occurs 65 times in the Qur'ān, but in no occurrence is it reported to have been read with imālah by any reader. Ibn al-Jazari could, however, have found words of similar form in the Qur'ān that are pronounced with imālah by some qurrā', for example, cimrān which is pronounced by Ibn Ḥakwān with imālah [cimrēn]. Many similar examples may be given of words that, according to the grammarians, are pronounced with imālah, but are

17 al-Kitāb, 2 / 262.
18 Sharḥ al-mufassal, 9 / 56.
20 at-Taysir fi al-qrā'āt as-sab'. 52.
pronounced by the qurrā' without imālah. Among these words are: bilād (countries), ḥisān (beautiful (girls), and cibād (human beings / servants).

2. ă → ē / i:

When /ă/ occurs before /i/, it may be pronounced as /ē/. Not more than one segment may separate the two vowels, e. g. cālim → cēlim (a scholar), cābid → cēbid (worshipper), fī an-nāri (in hellfire), and min an-nāsi → min an-nēsi (from the people). The kasrah in the first two examples is an internal vowel of the word, while in the last two it is a genitive marker. Either position is a circumstance of /ē/. This circumstance may be presented in this form:

\[
\begin{array}{c}
\text{ā} & \longrightarrow & \text{ē} & \bigg/ & \text{i} \\
\begin{bmatrix}
\text{+ voca.} \\
\text{+ low.} \\
\text{+ long}
\end{bmatrix} & / & \begin{bmatrix}
\text{+ voca.} \\
\text{- low.} \\
\text{+ long} \\
\text{- high} \\
\text{- back}
\end{bmatrix} & / & \begin{bmatrix}
\text{+ voca.} \\
\text{- round} \\
\text{- long} \\
\text{+ high}
\end{bmatrix}
\end{array}
\]

Neither grammarians nor scholars of tajwīd allow more than one separating segment in this case. However, qurrā' do

\[\text{An alternative form may be:}\]

\[
\begin{array}{c}
\text{ā} & \longrightarrow & \text{ē} & \bigg/ & \text{i} \\
\begin{bmatrix}
\text{+ voca.} \\
\text{+ low.} \\
\text{+ long}
\end{bmatrix} & / & \begin{bmatrix}
\text{+ voca.} \\
\text{- low.} \\
\text{+ long} \\
\text{- high} \\
\text{- back}
\end{bmatrix} & / & \begin{bmatrix}
\text{+ voca.} \\
\text{- round} \\
\text{- long} \\
\text{+ high}
\end{bmatrix}
\end{array}
\]

21
not always follow the theory of either grammarians or scholars of *tajwîd* in practice. Some examples that have *imâlah* in the theory of the grammarians but not in the practice of the *qurrâ* are: *biṭarīḍ* (driven away), *mârid* (obstinate), and *mârij* (fire free of smoke).

3. á → ō / y  

According to Arabic grammarians and theoreticians of the science of *tajwîd*, a preceding /y/ is a circumstance of *imâlah* in a kind of progressive assimilation. A suitable form may be represented as:

\[
\begin{array}{c}
+ \text{voca.} \\
+ \text{low.} \\
+ \text{long}
\end{array}
\rightarrow
\begin{array}{c}
+ \text{voca.} \\
- \text{low.} \\
+ \text{long} \\
- \text{high} \\
- \text{back}
\end{array}
\rightarrow
\begin{array}{c}
- \text{conso} \\
- \text{voca.} \\
- \text{round}
\end{array}
\]

In this case, the conditioning /y/ and assimilating /á/ may occur:

a. contiguously as in: *bayyāc* → [bayyēc] (salesman), *kayyāl* → [kayyēl] (one who weighs), and *bayān* → [bayēn] (report).

b. separated by one segment as in: *šaybān* → [šaybēn] (an Arab tribe's name), and *cAylān* → [cAylēn] (an Arab tribe's name).

c. separated by two segments as: *ḥayawān* → [ḥayawēn]

---

(animal), and mayalān → [mayalēn] (deflection).

d. separated by four segments as: yadahā → [yadahē] (her hand), and yadanā → [yadanē] (our hand). However, Ibn al-Jazari considers it as being separated only by two segments; to him and other grammarians ḥarakāt (short vowels) do not count.23

Qurrā3 do not follow this theory. To them /y/ does not cause imālah. Thus they do not pronounce with imālah many such words, e.g., bayān (report), ḥayāt (life), ḥayyām (days), and bayātan (at night).24

On the other hand, when /y/ occurs after /ā/, it does not influence the pronunciation of it.

4. ā → ē / ī :

When /ā/ occurs after /ī/ it may be pronounced with imālah. The influence of the long vowel /ī/ here is greater than that of the short vowel /ī/ and that of the semi-vowel /y/.25 This circumstance may be represented in the following form:

\[
\begin{bmatrix}
+ \text{voca.} \\
+ \text{low.} \\
+ \text{long}
\end{bmatrix}
\rightarrow
\begin{bmatrix}
+ \text{voca.} \\
- \text{low.} \\
+ \text{long} \\
- \text{high} \\
+ \text{back}
\end{bmatrix}
\bigg/ \bigg[ \begin{bmatrix}
+ \text{voca.} \\
- \text{round} \\
+ \text{high} \\
+ \text{long}
\end{bmatrix}
\end{bmatrix}
\]

---

23 an-Nashr, 2 / 33.
24 al-Imālah fi al-qirāt, 234.
25 Sharḥ al-muḥaṣṣal, 9 / 56.
The conditioning and assimilating sounds here may be separated by one segment as in /dibāj/ → [dibēj] (silk brocade), and may be separated by more than one segment as in yakīlahā → [yakīlahē] (he weighs it).

5. ā → ē / r — — — — — — — :

It is claimed by both grammarians and scholars of tajwīd that the muraqqaqah / r / has a strong tendency to cause the occurrence of imālah. al-Kisā'i says: "līl-ṣArab fī kasr ar-rā? ra'yun laysa lahā fī gāyrihi" 26 (to Arabs the occurrence of imālah in the neighborhood of / r / is more likely than with other sounds). In their view, the reason is that "/ r / is close to yā?" 27 and also / r / acts as if it were two because of its trillity and the kasrah acts as if it were two too. 28

The question is: is the dominant influence here that of / i / or that of / r / ?

Some examples may help to indicate whether / r / in itself causes imālah or not:

1. a. tārid → tērid (driven away),
   b. tā'if → * tē'if (migrant),
   a. yārim → yērim (one who pays),
   b. yā'ib → * yē'ib (absent). 29

From these examples, it is clear that / r / causes imālah since both (a) and (b) have the same circumstances; however,

26 Ibraz al-ma'āni min hirz al-'amāni, 219.
27 al-Kitāb, 2 / 268.
*imālah* occurs where /r/ occurs and not when it does not.

However the influence of /r/ on *imālah* only functions where /r/ is *muraqqaqah*. Compare these examples:

2. a. ِهَمْرِيْكَا → ِهِمْرِيْكَا (with genitive case),
   
b. ِهَمْرَاْكَا → ُهِمْرَاْكَا (with accusative case),
   
c. ِهِمْرُكَا → ُهِمْرُكَا (with nominative case).

6. The *alif* in *mutaṣarrif* (conjugated) verbs and *muṣrāb* (inflective) nouns where there is no neighboring / i, ī, or y / in the surface structure:

   When there is no neighboring /i, ī, or y/, /ā/ itself is taken in consideration, whether it occurs in the middle or finally, whether it represents an original /y/ or /w/, what its function is, and whether it occurs in a noun or in a verb. The different types of *alifs* are represented in a tree form:
Some observations and examples concerning the occurrence of imālah may be offered on the basis of this tree:

a. The final augmentative alif accepts imālah whether it is appended or a feminine marker. Some examples are:
   ṭublā → [ṭublē] (pregnant),
   Sucdā → [Sucdē] (a woman name),
   ḫartā → [ḵartē] (a kind of tree).

b. The alif that is /y/ in underlying structure may be pronounced with imālah\(^{30}\) whether it occurs in a noun or in a verb, as in:
   ṛamā → [ramē] (to throw),
   qadā → [qadē] (to judge),
   fatā → [fatē] (young man) [in pause],
   ṛahā → [rahē] (mill) [in pause].

c. The alif that is /w/ in underlying structure may be pronounced with imālah too except in three positions:

1. As the middle radical in a verb that does not take kasrah in the elided forms, e. g.
   qāla → * [qēla] (to say),
   ṭāba → * [ṭēba] (to become good).

   These verbs take qāmmah in these forms, qultu (I said), and ūbtu (I became good or well).

   However in ajwaf (hollow) verbs that do take kasrah in the elided forms, imālah may occur, as in: fāza (to win)

\(^{30}\) al-Kitāb, 2 / 92.
and *xāfa (to fear), which may be pronounced with *imālah as *[fēza] and *[xēfa]*

2. As the middle radical in a noun, as in:
   * bāb → * [bēb] (door),
   * dār → * [dēr] (house).

3. As the final radical in a triradical noun, as in:
   * cāšā → * [cāšē] (rod),
   * qafā → * [qafē] (back).

   The circumstances of *imālah* given by grammarians and scholars of *tajwīd* concerning /ā/ originating as /w/, are not convincing.

   The *qurrā’,* in practice, do not always follow the theory enunciated by both grammarians and scholars of *tajwīd* in this case. The following examples are pronounced with *imālah* theoretically. However the *qurrā’* pronounce them without *imālah*:

   * dacā (to call), danā (to become close), zakā (to become good), calā (to become high), and najā (to escape).

   It is clear that when linguists state the first five circumstances of *imālah,* they mean only one type of *alif,* namely the non-final augmentative such as *cālim*, *firāš,* and *samāc*. None of them, however, specifies this type of *alif* /ā/; they all appear to refer to it in general terms, which are hardly appropriate.

7. *at-tanāsub* (conformity, e.g. harmony):
   /ā/ may be pronounced as /ē/ to match another /ē/ This circumstance of *imālah* is a kind of vowel harmony.
One of the alifas has a real circumstance of imālah while the other does not, except in conformity. This type of vowel harmony may occur either regressively or progressively, within the same word or across word boundaries. In words such as cimādā → cimēdē (support) and kitābā → kitēbē (book), in pause, the first alif is pronounced with imālah because it is preceded by a kasrah. The second alif is pronounced with imālah for the sake of harmony. The above examples represent progressive occurrence in conformity. Examples of regressive occurrence within the same word are in the reading of yatāmā (orphans) and an-našārā (christians) as al-yatēmē and an-našērē, in which the second alif accepts imālah by virtue of being a fourth or subsequent letter.

Imālah in the circumstance of conformity across word boundaries is found in the Qurān. Some qurrā pronounce with imālah all the final / ā /s at the end of verses such as in the Sūrah Waḍ-ḍuḥā (by the morning). Another example is found in the Sūrah Waš-šamsi wa ḍuḥāhā (by the sun and its morning).

8. before the feminine marker / ħ / (in pause only):

al-Kisā pronounces with imālah the fatḥah / a / before hā at-taṣfīth 31 (feminine / h /) specifically in a pause on condition of its being not preceded immediately by ḥ, c, or istilā sounds. An example in this case is: raḥmah → [ raḥmeh ] (mercy). He does not apply this to any other hā, e. g:

31 Whether it is written as ta marbūtah or ta maftūhah, al-Kisā reads it in pause with imālah. (See Ibrāz al-marānī, 243).
original *hā*, as in: *tawajjah* —→ *tawajjeh* ≈ (to face),
pronoun *hā*, as in: *cilmahu* —→ *cilmeh* ≈ (his knowledge).
Sibawayh says of this phenomenon: "/ a / followed by / h /
is analogous to / a / followed by *alif*".

9. In *al-Ḥurūf al-muqatṭa*cab* at the beginning of some
Surahs:
a. *Alif Lām Rā*. This is pronounced by Abū cAmr, al-Kisā',
Ibn cĀmir, Ḥamzah, Khalaf, and Abū Bakr as *Alif Lām Rā*.
Similarly with *Alif Lām Mīm Rā*.
b. *Kāf Hā Yā cAyn Šād*. This is pronounced by some qurrah
as [ Kāf Hē Yē cAyn šād ].
c. *Tāhā, Tāsīn, and Tā Sīn Mīm* are sometimes pronounced
as [ Ṭēhē ], [ Ťēsīn ], and [ Ťēsimmīm ] respectively.
d. *Hā Mīm* is sometimes pronounced as [ Ḥē Mīm ].

10. ar-Riwāyah *wat-talaqqī* (transmission):
The qurrah frequently allege the tradition of the
transmission that they have received as a reason for adopting
imālah in circumstances other than those we have mentioned,
and for not adopting it in some of the latter circumstances.

1. There are many cases where imālah occurs without any
apparent circumstance; these receive only unsatisfactory
explanations from the theoreticians. An example of this is the
reading of *khāfa* with imālah. One reason given here is
"that / ā / becomes / ī / in the passive". If this reason

32 al-Kitāb, 2 / 270.
were accepted, all 'ajwaf verbs would be read with *imālah*, which is not the case.

2. Some words are reported to have been read with *imālah*, whereas similar words in similar circumstances are not. Makki Ibn Abī Ṭālib says: "Some cases of *imālah* may occur by virtue of oral transmission, without any other reason".  

3. Grammarians as well as scholars of *tajwīd* believe that it is obligatory to follow the *qurrā*[^3]. Sibawayh says: "The *qirā'ah* (what the *qurrā* say) may not be rejected, because it is a *sunnah*, which should be followed"[^33]. Similar statements are made by Ibn al-Jazari[^36].

However in normal speech, one may pronounce /ā/ with *imālah* or not because *imālah* is optional. Sibawayh says: "Know that people who pronounce /ā/ with *imālah* do not do so in all cases, nor do those who pronounce /ā/ without *imālah* always do so."[^37]

*Imālah* as a dialectal variant:

This issue will be discussed from two different points of view. Firstly, in the language in general as dealt with in works on Arabic grammar and linguistics. Secondly, in the recitation of the *Qurān* as laid down in theories of *qirā'at* as well as in the actual practice of the *qurrā*[^3].

[^33]: Ibrāz al-maʿāni min hirz al-ʿamāni, 231.
[^34]: al-Kashf, 84.
[^36]: an-Nashr, 1 / 10-11.
[^37]: al-Kitāb, 2 / 263.
1. In general:

Imālah is a dialect variant. Tribes having the tendency to pronounce /a / ā / with imālah live in the central eastern parts of the Arab peninsula. Ibn al-Jazarī says: "al-imālah is a feature of the dialects of all the Najdī tribes such as Tamīm, Asad and Qays." The tribe that is best known for consistent use of imālah is Tamīm. However, within these dialects, imālah is still only an allophone of /ā /. The tribes having the tendency to pronounce /a / ā / purely live in the western parts of the peninsula. The fath is usually associated principally with the dialect of Ḥijāz.

This does not mean that no Ḥijāzī, for example, would ever pronounce /ā / with imālah. In fact, there was considerable interaction between Quraysh and other Arab tribes in the Jahiliyyah as well as in Islam, and they were influenced by them. This appears to have confused Ibn al-Anbārī; he says: "It [imālah] is the dialect of ʿahl al-Ḥijāz and their neighbors such as Tamīm and others." 40

2. In Qurāʾāt:

In this particular sphere, the important question appears to be: which of the qurrāʾ apply imālah?

A statement by Ibn al-Jazarī gives us an idea of how common imālah is among qurrāʾ: "There is no qāriʾ who does not use imālah to a greater or lesser extent." 41 Hamzah and al-

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38 an-Nashr, 2 / 30.
40 Āsrār al-ʿArabiyyah, 160.
Kisā’I are among those use it most. Ibn Kathir uses it least, according to Ibn al-Jazarī. However, as-Suyūtī says: "All the ten⁴² qurrā used imālah, except Ibn Kathir, who did not use it at all, throughout his reading of the whole Qurān."⁴³

3.2.2.4. The inhibition of imālah:

The circumstances that inhibit imālah are more clearly defined than those in which imālah occurs. The following are the circumstances in which imālah is inhibited:

1. *ā — ē / emphatic — : after emphatic sounds:

When / ā / is preceded by an emphatic sound [ṣ, ẓ, ẓ, q, y, x, ẓ, and ṣ], imālah does not occur, as in qācid (sitting), yājib (absent), xāmīd (abating), sācid (going up), ṭājīf (ambulant), dāmin (responsible), ẓālim, rāsid, and Allāh. Sibawayh says: "We do not know anyone who pronounces / ā / here with imālah except those whose Arabic is not acceptable."⁴⁴ However, according to the grammarians, when the conditioning emphatic sound is preceded or followed by kasrah, most people produce imālah⁴⁵. Here are some examples:

mišbāh —— mišbēh (lamp),
ṣicāb —— ṣicēb (hard (pl.)),

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⁴¹ Munjid al-muqrhin wa murshid at-ṭalibin, 60.
⁴³ al-Itqān, 1 / 94.
⁴⁴ al-Kitāb, 2 / 264.
⁴⁵ Sharh al-mufassal, 9 / 60.
miḍḥāk → miḍḥēk (laughing),
ḍiċāf → ḍiċēf (weak (pl.)),
ḥiṭcām → ḫiṭcēm (feeding),
ṭiwāl → ṭiwēl (high (pl.)),
ḥiḍḷām → ḫiḍḷēm (darkness),
ṣīmā’ → ḫimē’ (thirsty (pl.)),
miṭnāj → miṭnēj (coquettish (woman)),
-nilāb → nilēb (struggle),
-nilbāt → nilbēt (humility),
-nilbēe → nilbēe (bad (pl.)),
miqlāt → miqlēt (frying pan),
qilāf → qilēf (container).

According to the qurrā’, on the other hand, imālah is inhibited here. The only word reported with imālah here is ḍiċēf (weak (pl.)), and even this, is read only by Ḥamzah.

There are some exceptions to the influence of the preceding emphatic sounds:

a) ā → ē / emphatic — (in ḥajwaf (hollow) verbs):

When /ā/ occurs in ḥajwaf (hollow) verbs, as in these examples:

xāfa → [ xēfa ] (to fear),
ɣāba → [ ɣēba ] (to be absent),
ṭāba → [ ṭēba ] (to be good),
ṣāra → [ ʂēra ] (to become).

46 an-Nashr, 2/63.

47 In this example, /ā/ occurs between two emphatic sounds; however, imālah is not inhibited.
b) $\ddot{a} \rightarrow \ddot{e}$ / emphatic ___

When $\ddot{a}$ occurs finally, $im\ddot{a}lah$ occurs, as in these examples:

\begin{itemize}
  \item $\dddot{a}\dddot{a} \rightarrow [\ddot{a}\ddot{a}]$ (to overflow)
  \item $\ddot{s}\ddot{a}\ddot{a} \rightarrow [\ddot{s}\ddot{a}\ddot{e}]$ (listen).
  \item $al-muc\dddot{t}\dddot{a} \rightarrow [al-muc\ddot{t}\ddot{e}]$ (the given),
  \item $al-wust\ddot{a} \rightarrow [al-wust\ddot{e}]$ (the central).
\end{itemize}

c) $\ddot{a} \rightarrow \ddot{e}$ / emphatic ___

When $\ddot{a}$ occurs before $r$ which is followed by \\
\begin{itemize}
  \item $i$ / 48, as in these examples:
  \item $q\ddot{a}rib \rightarrow q\ddot{e}rib$ (boat),
  \item $\ddot{y}\ddot{a}rim \rightarrow \ddot{y}\ddot{e}rim$ (debtor),
  \item $\ddot{t}\ddot{a}rid \rightarrow \ddot{t}\ddot{e}rid$ (driving away).
\end{itemize}

2. * $\ddot{a} \rightarrow \ddot{e}$ / ___ emphatic : before emphatic sounds:

When $\ddot{a}$ is followed by an emphatic sound, $im\ddot{a}lah$
\begin{itemize}
  \item / $\ddot{a}$ / is followed by one or more other sounds:
  \item $n\ddot{a}qid \rightarrow * [n\ddot{e}qid]$ (critic),
  \item $c\ddot{a}\ddot{t}is \rightarrow * [c\ddot{e}\ddot{t}is]$ (sneezing),
  \item $n\ddot{a}fix \rightarrow * [n\ddot{e}fix]$ (blowing),
  \item $n\ddot{a}hid \rightarrow * [n\ddot{e}hid]$ (rising),
  \item $man\ddot{a}\ddot{ski}\ddot{t} \rightarrow * [man\ddot{e}\ddot{ski}\ddot{t}]$ (pleasant things),
  \item $man\ddot{a}\ddot{fix} \rightarrow * [man\ddot{e}\ddot{fix}]$ (bellows).
\end{itemize}

The emphatic sound is strong enough to inhibit $im\ddot{a}lah$
\begin{itemize}
  \item even across word- boundaries:
  \item $\ddot{y}at\ddot{a} Q\ddot{a}\ddot{s}im \rightarrow * [\ddot{y}at\ddot{e} Q\ddot{a}\ddot{s}im]$ (Qasim came).
\end{itemize}

\textit{\textsuperscript{48} al-Kit\ddot{a}b, 2 / 268.}
The following are important observations on the inhibition of *imālah*:

1. Why do *istiqlā* sounds inhibit *imālah*?

   Pronouncing /a/ as pure alif with neighboring *istiqlā* sounds is a kind of assimilation. Sibawayh explains this: "*Istiqlā* sounds inhibit *imālah* only because they are sounds that rise to the upper palate, and *alif* rises to the upper palate when it is produced at its (true) place of articulation."\(^{49}\) This is made clearer by Khalid al-Azhari: "The *mustaṣla* sounds inhibit *imālah* in a search for harmony of sounds."\(^{50}\)

2. Regressive assimilation is more frequent and less readily inhibited than progressive. Thus, the inhibiting sounds have a greater influence when they occur after /a/ than when they occur before it. This statement may be supported by the following:

   a. Preceding emphatic sounds inhibit *imālah* only when occurring contiguously. Following emphatic sounds, on the other hand, inhibit *imālah* even when separated by up to two other sounds:

   - *ṣācid* → *[ṣeṣid]* (going up), but
   - *ṭilāb* → *[ṭileb]* (claiming),
   - *xilāf* → *[xilef]* (disagreement).

   b. Preceding emphatic sounds inhibit *imālah* only within the same word. This is not the case with following emphatic

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\(^{49}\) *al-Kitāb*, 2 / 264.

\(^{50}\) *Sharh at-taṣriḥ 'alā at-tawdīḥ*, 2 / 349.
sounds.

dabaṭa ẓa'ilim → [dabaṭa ẓa'ilim] (to capture a scholar).

c. Exceptions to the inhibition of progressive assimilation are more numerous than those of regressive. The alif in ʿajwāf verbs and the final alif are good examples.

3. The law of assimilation, including ʿimālah, does not always apply. An example is the following two readings of Ḥamzah:
a. zāyat canhum al-ʿabsār (have their eyes failed to preserve them),
b.ẓāqat calayhim al-ʿard (the earth seemed constrained to them).

He reads the first example without ʿimālah and the second example with ʿimālah. However, /ā/ in the second example occurs between two emphatic sounds, and ʿimālah is still not inhibited. Ḥamzah is definitely following his teachers in both cases.
3.2.3. Vowel harmony:

Vowel harmony may be defined as "a principle which rules that the vowels of neighboring syllables shall have similarity with each other."\(^1\) The best equivalent term for vowel harmony in Arabic is *itbāṣ as-sawālit*.

In this sub-chapter, the vowel harmony will be limited to that of identicalness between vowels. Applying this limitation, *imālah*, for example, may be excluded from our discussion here, except in a few cases, where a vowel assimilates to another vowel completely. However, in all its types, *imālah*, as we have seen, is a kind of vowel harmony.

There are two types of vowel harmony: progressive and regressive. Some linguists limit vowel harmony to the progressive type and call the regressive one "umlaut"\(^2\). However, we shall use the term "vowel harmony" here for both types, as other linguists do, since they both exist in Arabic. The vowels involved, as has been mentioned,\(^3\) do not occur contiguously, but rather with one or more consonants intervening.

Vowel harmony may occur across morpheme and word boundaries as well as within the same word. It is one of the most common types of distant assimilation.

Vowel harmony occurs as a systematic feature in a number of languages, such as Turkish and Hungarian. In Turkish, for example, unrounded vowels occur after other unrounded vowels,

---

2. For example, see Roger Lass, *Phonology*, 171-172.
3. See (3.2.1. above).
and rounded vowels occur after other rounded vowels.

Systematic vowel harmony occurs in Arabic in a limited number of cases. Thus many Arabic linguists do not discuss it directly in their works.

1. Systematic vowel harmony:

A. Hamzat al-wasl:

This is a sound that is not pronounced when occurring between other sounds. In other words, this sound occurs only at the beginning of utterances. For example the hamzah of the definite article is wasl; it is pronounced initially as in ʾal-qamar (the moon) but is not pronounced in wa ʾal-qamar (and the moon) → * waʾal-qamar.

On the other hand, hamzat l-qaat persists, whatever its position within an utterance, ʾAhmad is pronounced as wa ʾAhmad (and Ahmad) and not * waḥmad.

Hamzat-l wasl may be mafṭūḥah (followed by /a/), as is the case with the definite article /ʾal-/, may be maksūrah (followed by /i/), as in nouns such as ʾīsm (name), ʾībn (son), and ʾīmrū (man) or imperatives such as ʾiḍhab (go), or may be maḍmūmah (followed by /u/), as in imperatives such as ʿuqtul (kill).

The most important thing in our discussion or hamzat al-wasl in nouns is verbal nouns of quinqueliteral and sexiliteral

---

4 In fact this hamzah persists, even in continuous speech, if it is the hamzah of the definite article and the preceding sound is hamzat al-istifḥām (interrogative particle) as in ʾasal bintu mašaka? (is the girl with you ?). Another situation where hamzat al-wasl persists is in the word ʿaymun in oaths, as in waymu ʾllah / waymun. It is retained in order to avoid ambiguity (al-Kitāb, 2 / 297).
forms, as in the following examples:

a. ًينتمَّ (outbreak),
 ًينحبَ (seclusion),
 ًينفيِر (relaxation),

b. ًينشيَب (taking out),
 ًينشيَم (using),
 ًينشيِم (questioning).

This systematic vowel harmony may be represented in the following form:

\[
\begin{array}{cccc}
+ \text{cons.} & + \text{voca.} \\
+ \text{back.} & - \text{long} \\
- \text{conti} & - \text{voice} \\
\end{array}
\rightarrow
\begin{array}{cccc}
+ \text{cons.} & + \text{voca.} \\
+ \text{back.} & - \text{round} \\
- \text{conti} & - \text{high} \\
- \text{voice} & - \text{long} \\
\end{array}
/ (cc) \begin{array}{c}
+ \text{voca.} \\
\end{array}
\begin{array}{c}
+ \text{round} \\
+ \text{high} \\
- \text{long} \\
\end{array}

\text{L-} (\text{of wasl in nouns}) \quad \text{L-} i \quad i
\]

However with hamzat al-qat\text{c}, there is no vowel harmony, as in these examples:

ًاقربَ (relatives),
ًاقويَ (strong (pl.)).

When hamzat al-wasl occurs in a verb form, the harmony of vowels is more systematic; the vowel immediately following the hamzah is /u/ when the following vowel is /u/, and is /i/ when the following vowel is an unrounded one. These are some examples:

1. ًعَبَ (worship 1),
 ًعتَ (kill 1),
 ًعنُلتِ (a setting-off took place 1),
2. a. *ṣūrīb* (hit 1),
    *ṣīlis* (sit down 1),
    *ṣīnāfr* (go away 1),
    b. *ṣīfham* (understand 1),
    *ṣīfrāf* (be happy 1),
    *ṣībtācid* (go away 1).

Suitable forms for these types of harmony may be represented as follows:

\[
\begin{array}{c}
\begin{array}{c}
\text{+ cons.} \\
\text{+ back.} \\
\text{- conti} \\
\text{- voice}
\end{array}
\quad \begin{array}{c}
\text{+ voca.} \\
\text{- long}
\end{array}
\quad \begin{array}{c}
\text{+ cons.} \\
\text{+ back.} \\
\text{- conti} \\
\text{- voice}
\end{array}
\quad \begin{array}{c}
\text{+ voca.} \\
\text{+ round} \\
\text{+ high} \\
\text{- long}
\end{array}
\end{array}
\]

\[\text{of waṣl in verbs}\]

\[
\begin{array}{c}
\begin{array}{c}
\text{+ cons.} \\
\text{+ back.} \\
\text{- conti} \\
\text{- voice}
\end{array}
\quad \begin{array}{c}
\text{+ voca.} \\
\text{- long}
\end{array}
\quad \begin{array}{c}
\text{+ cons.} \\
\text{+ back.} \\
\text{- conti} \\
\text{- voice}
\end{array}
\quad \begin{array}{c}
\text{+ voca.} \\
\text{- round} \\
\text{+ high} \\
\text{- long}
\end{array}
\end{array}
\]

\[\text{of waṣl in verbs}\]

Again these forms are connected with *hamzat al-waṣl* only. There is no harmony in similar circumstances with *hamzat al-qatāc*, as in:

*ṣāqribu* (I hit), and
The Arabic linguists detail the types of verbs in which hamzat al-wašl occurs, as follows:

1. The past tense of a quinqueliteral verb: ḥinqaṭafà (to turn).
2. The past tense of a sexiliteral verb: ḥistafhama (to ask).
3. The imperative of a triliteral verb: ḥilcàb (to play).
4. The imperative of a quinqueliteral verb: ḥintaṣyr (to wait).
5. The imperative of a sexiliteral verb: ḥistàcml (to use).

According to az-Zamakhshari, the pronunciation of hamzat l-wašl as hamzah in continuous speech is not Arabic and is lâphn.

B. Third person pronouns:

Vowel harmony occurs systematically with the third person pronoun. This pronoun includes all suffixes: hā (her); hu (him / it), humā (them (dual)), hum (them (masculine plural)), and hunna (them (feminine plural)). The following are some examples:

1. * bihu → bihi (in it),
   * fihu → fîhi (in it),
   * min cindihu → min cindihi (from him),
   * min kitābihu → min kitābihi (from his book),
   * calayhu → calayhi (on him / it),
   * ladayhum → ladayhim (with them),
   * fî nādīhum → fî nādīhim (in their club),
   * min qādīhu → min qādīhi (from his judge).

---

5 Sharh al-mufassal, 9 / 137.
2. *kitābuhu* (his book),
   *rusuluhum* (their (m) messengers),
   *buyūṭuhunna* (their (f) houses).

3. *kitābahu*,
   *rusulahum*,
   *buyūṭahunna*,
   *qatalahu* (he killed him),
   *samīrahum* (he heard them).

4. *iqraḥu* (read it),
   *lam yasmachum* (he did not hear them),
   *minhum* (from them).

From the above mentioned examples, it is clear that the pronoun / hu / becomes / hi / if it is immediately preceded by / i /, / i /, or / y /, without any other consonant intervening. This may be represented in the following form:

\[
\begin{align*}
&\text{[+ cons.]} & \text{[+ voca.]} \\
&\text{[+ back.]} & \text{[- long]} \\
&\text{[+ strid]} & \text{[+ round]} \\
&\text{[- high]} & \text{[+ high]} \\
\end{align*}
\]

\[
\begin{align*}
&\text{hu} \quad (\text{as third p. p.}) \\
&\text{h} \\
&\text{i} \\
&\text{i, i, y}
\end{align*}
\]

Regarding the vowel harmony here, some exceptions are reported, as follows:

a. Some Hijāzi speakers would say: *bihu*, and *calayhu* instead of *bihi*, and *calayhi*. Ibn Kathīr read *fakhasafnā bihu wa*
bidārihu l-jārdā⁶ (then we caused the earth to swallow up him and his house).

Some other speakers would extend the vowel harmony to the vowel following / m /, in / hum / in particular. Abū cA mr reads: calayhimi ǧ-ǧillah (baseness has come upon them), and ... pilayhimi ṣnayn (... two to them)⁷ This harmony is known as al-wakam.

Ḫamzah - an Irāqi reader - reads calayhim, pilayhim, and ladayhim as calayhum, pilayhum, and ladayhum respectively ⁸.

cĀṣim, as reported by Ḥafṣ, reads with dissimilation the following two verses:

mā ǧansānihu (did not cause me forget it), and

bi mā cāhada calayhu ǧāh (what God had agreed on).⁹

Regarding the rule of the examples in (w 4) above, vowel harmony occurs in some of the utterances of Rabī'ah; according to Sibawayh, they would say minhim. Sibawayh; however, rejected this kind of vowel harmony and called it bad Arabic. It is known as al-waham.

C. ġimrū'un / ġimra'an / ġimri'īn:

The word for man ġimrū'un represents another type of systematic vowel harmony. The second vowel depends on the

---

⁶ al-Lahajät fi al-kitāb, 105.
⁷ al-Ḥujjah lil-qurrā' as-sab'ah, 1 / 58.
⁸ Ibrāz al-ma'āni min ḥirz al-amānī, 72.
⁹ an-Nashr, 1 / 305. Ḥujjat al-qirā'āt, 1 / 177.
last one. It becomes a high front before a high front, a high back before a high back, and a low before a low. Here are some examples:

- *huwa mru'un samīnun* (he is a fat man),
- *ra'aytu mra'an samīnan* (I saw a fat man),
- *mini mri'in samīnin* (from a fat man).

This type of vowel harmony is not violated by a pause, since deep representation of the final vowel is considered. The above examples are pronounced in pause as:

- *huwa mru* (he is a man),
- *ra'aytu mra* ,
- *mini mri* .

2. Non-Systematic:

A. *Fā'il* form:

The *fā'il* form is pronounced as *fiçil* by some Arabs as a dialectal variant. Some examples are:

- a. *la'īm* → *li'īm* (ignoble),
  *saqīd* → *siçid* (happy),
  *shahīd* → *shihīd* (martyr),
  *naḥīf* → *niḥīf* (thin),
  *bakhīl* → *bikhīl* (miserly),
  *raghīf* → *righīf* (loaf of bread).
- b. *kabīr* → *kibīr* (big),
  *karīm* → *kirīm* (generous),
  *jalīl* → *jilīl* (great).
Sībawayh\textsuperscript{10} and Ibn Jinnī\textsuperscript{11} limit this phenomenon to cases where the second radical is a ḥālqī sound, as in (a) above, while az-Zubaydī\textsuperscript{12} and al-Maṭḥabī\textsuperscript{13} do not limit it to ḥālqī sounds, as in (b) above.

This kind of vowel harmony is associated by Sībawayh with the dialects of Tamīm, Ḥuḍayl and a few other tribes. In fact, it is still heard in Najdī dialects.

Some people assimilate the vowel after the first radical to the vowel after the second radical in forms other than faṣīl, as: 
\textit{cūṣīyy} $\rightarrow$ \textit{qiṣīyy} (sticks), and
\textit{muntin} $\rightarrow$ \textit{mintin} (stinking).\textsuperscript{14} Ibn Jinnī reports an alternative progressive assimilation in this case: \textit{muntin} $\rightarrow$ \textit{muntun}.\textsuperscript{15}

\section*{B. C $\neq$ C $\rightarrow$ CvC / C $\neq$ CC (without pause):}

When a word ends with a consonant and is followed by a word beginning with two consonants as a result of dropping hamzat \textit{l-waṣl}, a short vowel is inserted at the end of the first word. This is part of the phenomenon of \textit{iltiqā} \textit{as-sākinayn} (consonant cluster). This insertion is called \textit{at-takhalluṣ min iltiqā} \textit{as-sākinayn} (avoiding consonant cluster). However, in pause, the contiguity of three consonants across word boundaries occurs, as in: \textit{wal-qaṣr $\neq$ ḥinna} (by the time verily). The three

\textsuperscript{10} al-Lahajāt \textit{fi al-kitāb}, 100.
\textsuperscript{11} al-Khāṣāvī, 2 / 141-145.
\textsuperscript{12} Tāj al-\textit{arūs}, 2 / 391.
\textsuperscript{13} Lahjat Tamīm wa ratharuhā \textit{fi al-Arabiyyah al-muwāḥhadah}, 162-163.
\textsuperscript{14} al-Lahajāt \textit{fi al-kitāb}, 101, 102.
\textsuperscript{15} al-Muhtasab, 1 / 178.
consonants (ṣ, r, д) are not separated by a vowel; if no pause were made at the end of the first word, the kasrah there would be retained.

The separating vowel is most commonly /i/, as in these examples:

\[
\text{qālat ḥdrib} \rightarrow \text{qālati ḥrib (she said: "Hit !")},
\]
\[
\text{min ḥbnika} \rightarrow \text{mini bnika (from your son)},
\]
\[
\text{can al-ṣilm} \rightarrow \text{cani l-ṣilm (off / from the knowledge)}.
\]

However, the separating vowel is not always /i/, it may be:

a. /u/ if the first vowel in the second word is /u/, as in:
\[
\text{qālat ṭukhruj} \rightarrow \text{qālatu khruj (she said: "go out !")},
\]
\[
\text{ṣan ṭuqtulū} \rightarrow \text{ṣanu qtulū (to kill (pl.))},
\]

b. /a/ after the preposition \text{min} when it is followed by the definite article \text{ṣal} only, as in: \text{mina l-qamar (from the moon), even when the next vowel is /i/, as in: mina l-ṣirqi (from the root).}

However, vowel harmony occurs here in the utterance of the people of Najrān, according to Abū ʿAmr and Sībawayh\textsuperscript{16}, and of Hawāzin and Huḍayl according to Abū Ḥayyān\textsuperscript{17}. They would say \text{mini l-Lāhi} instead of \text{mina l-Lāhi (from Allah)}.

The inserted vowel after \text{can}, a similar word to \text{min}, when followed by the definite article is /i/, as in: \text{cani l-qalam (off...the pen). This difference is not easy to explain.}

\textsuperscript{16} \textit{al-Muhtasab}, 1 / 283.
\textsuperscript{17} \textit{al- Bahr al-muhit}, 3 / 185.
C. Changing the main or inflectional vowel to match other vowels in the neighboring word:

The verse *al-ḥamdu lil-Lāhi* (praise to God) is reported to have been read with both regressive and progressive vowel harmony, as follows: *al-ḥamdu lul-Lāhi* and *al-ḥamdi lil-Lāhi*. The verse *fihi hudā* (it has guidance) is reported to have been read, with progressive vowel harmony, as *fihi hidā*\(^\text{18}\).

D. Finally, in some words, accepted free variation may occur, as follows:

1. \(a l- b\acute{a}\check{c}\check{e} / a l- b\acute{a}\check{c}\check{a}\check{e}\) (the sending out),
   \(a l- b\acute{a}\check{h}\check{r} / a l- b\acute{a}\check{h}\check{ar}\) (the sea),
   \(a n- nahr / a n- nahar\) (the river),
   \(a\check{s}-\check{a}\check{k}\check{h}r / a\check{s}-\check{a}\check{k}\check{h}r\) (the rock),
   \(shibh / shabah\) (similar),
   \(\check{c}\check{a}\check{s}\check{h}r\check{ah} / \check{c}\check{a}\check{s}\check{h}r\check{ah}\) (ten),
   \(jahrah / jaharah\) (loudly),

2. a. \(s\check{u}\check{n}an / s\check{u}\check{n}un\) (ways),
   \(\check{p}ushar / \check{p}ushur\) (lively),
   b. \(b\check{u}\check{r}q\check{a}\check{c} / b\check{u}\check{r}q\check{u}\check{c}\) (veil),
   \(\check{c}\check{u}\check{n}\check{s}\check{a}l / \check{c}\check{u}\check{n}\check{s}\check{u}l\) (squall),
   \(\check{c}\check{u}\check{n}\check{s}\check{a}r / \check{c}\check{u}\check{n}\check{s}\check{u}r\) (origin),
   \(\check{t}u\check{u}\check{h}\check{l}ab / \check{t}u\check{u}\check{h}\check{l}ub\) (water moss),

3. a. \(\check{y}\check{i}m\check{r} / \check{y}\check{a}m\check{a}r\) (flooding),
   b. \(r\check{a}jil / r\check{a}jal\) (walking),
   \(r\check{a}t\check{a}l / r\check{a}tal\) (elegant),

\(^{18}\) *al-ḥujjah lil-qurrā· as-sab·ah*, 1 / 207.
c. al-kiākiē / al-kaēkāe (?),
   al-jiēlib / al-jaēlāb (stones and earth),
   jinjin / janjan (?),

d. jidad / jadad (cutting dates from trees),
   širām / šarām (cutting dates from trees),
   qiṭāc / qaṭāc (cutting),

4. āukl / āukul (foods),
   rusl / rusul (messengers),

5. āuṣiy / āiṣiy (rods),

6. maysurah / maysarah (left-side),

7. subrūt / sibrūt (poor),
   zunbūr / zinbīr (hornet),

8. al-kiḏib / al-kuḏub (lie),

9. ḥujurāt / ḥujarāt / ḥajrāt (rooms),
   yurufāt / yurafāt / yurfāt (rooms),
   xuṭuwaṭ / xuṭawāt / xuṭwāt (steps).
3.2.4. Vowel lengthening and shortening:

It has already been stated that Arabic has three cardinal short vowels and three cardinal long vowels. However, the short vowels may be pronounced shorter or longer than their normal duration. Likewise, long vowels may be pronounced shorter or longer than their normal duration. This topic is dealt with separately by scholars of *tajwîd* and incidentally by Arabic linguists.

A. Lengthening:

The increasing of vowel duration may take one of the following types:

1. $v \rightarrow \bar{v}$:

The pronunciation of a short vowel is sometimes made longer to produce the corresponding long vowel. This phenomenon is known as *ishbâc* or *tamâlî*¹ (expansion) as opposed to *ikhtilâs* (the shortening of an already short vowel; slurring):

This type of increasing of vowel duration is not very common in Arabic. A few examples are reported in works on linguistics. Some of them are:

*mina l-‘ayyâmi* for *mina l-‘ayyāmi* (from the days) [at the end of a *bayt*].

*lâma lâjimû* for *lâma lâjimu* (a blamer blamed),

*fa ǧanāʒûru* for *fa ǧanāʒuru* (then I look at ...),

*bi muntazâhî* for *bi muntazaḥî* (in a distant place),

---

¹ See for example: *al-Kitab*, 2 / 297.
laḥmā shātīn for laḥma shātīn (the meat of a sheep).²

Most of the examples reported of this type by Arabic linguists undergo change as a result of metrical exigency. Thus it is not normal Arabic.

In the field of Qirā'āt, also, the changing of the short vowel to its corresponding long vowel is limited, but more systematic.

All qurrā³ pronounce the suffix -hi as hi and the suffix -hu as hū, when the sound immediately preceding it is a short vowel.³ This may be represented as follows:

- hi → hi / hū
- hu → hū / hū

Suffix pronoun

Some examples are:

يوم مهی → يوم مهی (his mother),
شایبئی → شایبئی (his wife),
بیه → بیه (in it),
لاه → لاه (for him),
سیندحه → سیندحه (with him),
روسلاهه → روسلاهه (his messengers).

Ibn Kathīr was in the habit of doing this even when the pronoun was preceded by a long vowel,⁴ unless it was followed by a sequence of two consonants CC.

فیه هد (has a guidance),

³ at-Taysir, 30.
⁴ Ibid. 29.
* yaclamhū Allāh (God knows it).

The reader Nāfi' read ʿalayhi, at every occurrence, in the Qur'ān as ʿalayhi (on him).

2. v →  ⟨

When the vowel of hi / hu is followed by a hamzah, the short vowel may not only become a long vowel but even an over-lengthened one / ː / as in:

\[\text{anna mālahu ḍakhladahu →} \text{anna mālahū ḍakhladahu}\]

(his wealth would make him immortal).

3. ː → ː:

"A long vowel is considered as equal to a consonant plus a following vowel. That is to say: ː = Cv. This can be interpreted in terms of quantity. Furthermore, this long vowel may be extended up to six times its length. This over-lengthening is given different names by Arabic linguists and scholars of tajwīd.

The linguists call it ʾishbāʾ, which is, as we have seen, also applied to the lengthening of a short vowel. The scholars of tajwīd call it ʾmādd, which to the linguists simply refers to an ordinary long vowel; the latter is called qaṣr by the scholars of tajwīd. Thus the vowel in lā (no/not) is referred to as ʾmādd by the linguists and qaṣr by the scholars of tajwīd. Ibn al-Jazari defines these terms in the following way: "The ʾmādd in this context is adding more length to that of normal ʾmādd".6

---


6 an-Nashr, 1 / 313. For a similar description, see Ibrāz al-maʿānī
The topic of over-lengthening is not discussed in linguistics in detail. However in *Qirāʾāt* material, a separate chapter is always devoted to it. The following are some environments where a long vowel becomes over-long:

a. ðāʾ → ðāʾ / before hamzah:

When a long vowel occurs immediately before a *hamzah* / ðāʾ /, it is pronounced with more length, whether the influenced sound and the conditioning sound occur within the same word or across morpheme or word boundaries. Here are some examples:

1. *shaʾa* (to wish),
   *ṣirāʾa* (grieved),
   *ṣūr* (evil).

2. *yaʿkükha* Hārūn (Oh. sister of Harun),
   *ya banī ʿisrāʾīl* (Oh. children of Israel),
   *yāclamū mana l-ẓāha* (know that God).

The lengthening with *al-hamz al-muttaṣil* (/ ðāʾ / and / ðāʾ / in the same word) is greater than with *al-hamz al-munfaṣil* (/ ðāʾ / and / ðāʾ / not in the same word). All *qurrāʾ* read with extra-length in both cases, with the exception of Ibn Kathīr 7 who reads with extra-length in the first case only. 8 However Ibn al-Jazarī says: “All scholars agree that the *madd* in both cases is required, although they actually do not agree about how much the extra-length should be. Nonetheless, in these two types (*muttaṣil* and *munfaṣil*), all *qurrāʾ* agree that

\[ \text{min ḥirz al-ʿamānī, 83, and al-Kashf, 1 / 45 , etc.;} \]

7 And Abū Jaʿfar, according to Ibn al-Jazarī (*an-Nashr*, 1 / 321).

8 al-Kashf, 1 / 56.
the qaṣr (not giving extra-length to the long vowel) is not accepted".⁹

A suitable form for this over-lengthening may be represented as following:

\[
\begin{align*}
\text{+ vocalic} & \rightarrow \text{+ overlength} \rightarrow \text{+ consonant.} \\
\text{+ long} & \rightarrow \text{+ vocalic} \\
\text{ toda} & \rightarrow \text{+ back.} \\
\text{+ long} & \rightarrow \text{+ overlength} \\
\text{+ consonant.} & \rightarrow \text{+ continuous} \\
\text{- voice} & \rightarrow \\
\end{align*}
\]

b. \(\text{v} \rightarrow \text{v} / \) before mushaddad (geminated) consonants:

When a long vowel is immediately followed by a geminated sound, it is pronounced with extra-length¹⁰. Here are some examples:

- \(\text{ad} - \text{dālālin} \) (who go astray),
- \(\text{dābbah} \) (an animal),
- \(\text{as} - \text{sārih} \) (the deafening noise),
- \(\text{'a tumiddūnī} ? \) (do you give me support ?),
- \(\text{a ta'murūnī} ? \) (do you order me ?).

This type of madd is called \(\text{al-madd as-sākin al-lāzim}\).¹¹

The following form may represent it:

\[
\begin{align*}
\text{+ vocalic} & \rightarrow \text{+ overlength} \rightarrow \text{+ consonant.} \\
\text{+ long} & \rightarrow \text{+ vocalic} \\
\text{+ long} & \rightarrow \text{+ overlength} \\
\end{align*}
\]

\[\text{v} \rightarrow \text{v}
\]

¹⁰ /i/ does not occur in this environment.

¹¹ an-Nashr, 1 / 317.
c. \( \vec{v} \rightarrow \vec{v} / \) in pre-pausal position:

When a long vowel occurs in pre-pausal position, the extra-length is applied. This type of lengthening is called \textit{al-madd al-cāriḍ lis-sukūn}. It usually occurs at the end of Qur'ānic verses but it is not limited to this case. The following are examples of such lengthening:

\begin{itemize}
  \item \textit{ar- Raḥmānu} \rightarrow \textit{ar- Raḥmān} \# (the most merciful),
  \item \textit{bi sultānin} \rightarrow \textit{bi sultān} \# (with a power),
  \item \textit{taclamūna} \rightarrow \textit{taclamūn} \# (you know),
  \item \textit{Hūdīn} \rightarrow \textit{Hūḍ} \#,
  \item \textit{al- mustaqīma} \rightarrow \textit{al- mustaqīm} \# (the straight (path)),
  \item \textit{nastacīnu} \rightarrow \textit{nastacīn} \# (aid we seek).
\end{itemize}

Unlike the preceding types of lengthening, this type is not necessarily given extra-length. It may be pronounced with normal length, or with more or less extra-length. A suitable form may be represented as:

\[
\begin{bmatrix}
\text{+ vocalic} \\
\text{+ long}
\end{bmatrix}
\rightarrow
\begin{bmatrix}
\text{+ vocalic} \\
\text{+ overlength}
\end{bmatrix}
\quad \text{(+ consonantal) \#}
\]

\( \vec{v} \rightarrow \vec{v} / \)

\[ \vec{v} \]


d. \( \vec{v} \rightarrow \vec{v} / \) after \textit{hamzah} in the reading of Warsh only:

He does this only when \textit{hamzah} is not immediately preceded by a consonant.\footnote{al-Kashf, 1 / 46-7.} The following examples represent his reading:

\textit{ʻāmana} \rightarrow \textit{ʻāmana} (to believe),
wa ṭālaynā → wa ṭālaynā (and we gave),
ṭūtiya → ṭūtiya (he/it was given),
ḥāmān → ḥāmān (believing),
muttakiḍīn → muttakiḍīn (reclining),
al- Qurʾān → al- Qurʾān (the Qurʾān),
masʿūla → masʿūla (responsible).

e. ḫ → ḫ / C (restricted to fawātiḥ as-suwar):
This is a special case in prolongation, mainly in al-ḥurūf al- muqattāʾah fi fawātiḥ as-suwar (the separate phonemes, which have long vowels, at the beginning of some sūrahs). They are seven in number and are pronounced with prolongation by all qurrāʾ:

   1. šād → šād,
   2. qāf → qāf,
   3. nūn → nūn,
   4. sīn → sīn,
   5. lām → lām,
   6. kāf → kāf,
   7. mīm → mīm.

f. y / w → ʾy / ʾw / before hamzah, or before geminated consonants, in pre-pausal position, and in fawātiḥ as-suwar:
Prolongation is also applied to glides when they occur in an environment where a long vowel takes extra-length. Here are some examples:

cayn → cayn (the letter c in fawātiḥ as-suwar,

\[13\] Ibrāz al-maʿānī, 123.
Concerning the prolongation of glides, Abū Shāmah says: "The *l*n letters are not given extra-length when there is no *hamzah* or *sukūn".¹⁴ He considers those who read the following examples with extra-length as mistaken: *calayhim* (on them), * válayhim* (to them), *ladayhim* (with them), *aṣ-ṣayfi* (summer), *al-bayti* (house), *al-mawtu* (death), and *al-khawfu* (fear). However the last four examples may be pronounced with extra-length in pause.¹⁵

But when these glides and /æ/ occur not in the same word, the lengthening is not accepted, as in: *khalaw* *jilā* → *khalaw* *jilā* (be alone with), *ribnay* *daḍama* → *ribnay* *daḍama* (the two sons of Adam).

Regarding the prolongation of vowels, some points may be made:

1. Two questions arise here: how much longer can a long vowel be made? What measurement do the *qurrāʾ* use to differentiate between the various types of lengths?

The long vowel is regarded as equal to two *ḥarakahs* (movements, short vowels /v/) as the minimum length. The extra length may be the equivalent of two *alifs* (twice the

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¹⁴ *Ibrāz al-maʿānī*, 125.
normal length of / ā /), four alifs, five alifs, or six alifs; this last is the maximum length, which is sometimes called ʿifrāṯ (excess). 16

Qurʾānic teachers sometimes use simple, practical, methods to help learners to recognize and differentiate between the various gradation of vowel-quantity. The time it takes a reader to open and close his hand is equal to the duration of a normal long vowel.

2. Lengthening is more prolonged before geminated consonants than in any other circumstances, then comes lengthening before / ʾ / in the same word. These two types of prolongation are required in the reading of the Qurʾān, according to all qurrāʾ. 17

3. Elongation of a long vowel after hamzah, in the reading of Warsh, is greater than that of a glide before hamzah. As a result, / ā / and / ū / in the following two examples are given extra-length, while / w / is not 18:

sawʾātiḥimā → to Warsh [sawʾātiḥimā] (their (dual) shame),
al-mawʾūdati → to Warsh [al-mawʾūdati] (the infant female buried alive).

4. When the same type of madd occurs twice in the same word, the reader is recommended by some scholars to give extra-length to both of them 19, as in the following examples:

tiḥāṯūnni ((come) ye to dispute with me),

16 See an-Nashr, 1 / 321-326.
17 an-Nashr, 1 / 351.
18 al-Kashf, 1 / 49.
19 al-Burhān fi tajwīd al-Qurʾān, 70.
alif lâm mîm (alif lâm mim),
رَأَيْ-رَأَّنا (now).

Equal lengthening is applied in similar situations within the same sentence. Therefore, the alif after /h/ in both words hâ 'antum (here you are) and hâ'ulâ'i (these) is read with the same degree of length\textsuperscript{20}, for the sake of vowel harmony.

5. If there exist two circumstances of lengthening, in the opinion of the majority the stronger only operates. Some, on the other hand, observe both.

B. Shortening:

A long vowel may be pronounced shorter and thus made into a short vowel. A few words are reported to have been so uttered, in samâ'i cases, such as an-nujum for an-nujûm (the stars) and al-ḥulûq for al-ḥulûq (throats). Some shortening of vowels is made systematically, and in qiyāsî cases. Here are some of them:

1. / Mā / (what...) is pronounced / ma / when preceded by a genitive particle:
   * bi mā → bi ma (in what),
   * can mā → can ma (what),
   * li mā → li ma (why),
   * ḫilā mā → ḫilā ma (until what),
   * ḫattā mā → ḫattā ma (until what).

2. When a word ends with a long vowel and is followed by a

\textsuperscript{20} an-Nashr, 1 / 356.
word starting with two consonants, the long vowel is pronounced short to protect the syllabic structure of the language, which prohibits the occurrence of three sākins together:

* fatā l-mustaqbal → fata l-mustaqaql (the young of the future),
* ġū l-cilmi → ġu l-cilmi (the knowledgeable person),
* yadcū ar-rajulu → yadcū r-rajulu (the man invites),
* fi al-`arḍi → fi l-`arḍi (in the earth),
* yamshī aṭ-ṭiflu → yamshī t-ṭiflu (the child walks),
* muṣṭafā+wn / yn → muṣṭafawn / muṣṭafayn (Mustafas (plural, dual)).

However, when the long vowel in question is a dual marker, it cannot be shortened because that would give rise to ambiguity in the sense: qalamā aṭ-ṭālib (the two pens of the student) is not pronounced qalama aṭ-ṭālib, because that would sound identical with the singular.

3. The first person pronoun /ī, nī/ at the end of words may be shortened to /i/: yā cibādī (oh, my servants) may be pronounced as [yā cibādī], and fattaqūnī (fear me) may be pronounced as [fattaqūnī].

4. A radical may sometimes be shortened, e.g:
   al-yawānī (the beautiful girls) may be pronounced as [al-yawānī],
   al-cawālī (the high places) may be pronounced [al-cawālī],
   al-muhtadī (the guided one) may be pronounced [al-muhtadī].
3.2.5. Emphatic / ֵ/:

alif at-tafkhîm is a secondary accepted and recommended sound by both Arabic linguists and scholars of tajwid. Its value lies between pure / ā / and / ū /. In other words, it is / a / pronounced with a measure of lip-rounding. Ibn Jinnî says: “As to alif at-tafkhîm, it occurs between the alif and the wāw.”

It is worth mentioning that tafkhîm is used also to describe the pronunciation of alif and fatḥah without imālah, as we have seen earlier; however, this is not meant here. Some examples of tafkhîm here are:

ṣalāt → ṣalît (prayer),
zakāt → zakît (purity),
ḥayāt → ḥayît (life).

The question here is: what type of sound is it? Is it:

1. an independent phoneme?
2. a free variant of / ā /?
3. an allophone of the phoneme / ā / or
4. a dialectal variant?

None of the Arabic linguists or scholars of tajwid claim that this sound is an independent phoneme or a free variant of / ā /.

Three possible circumstances may be listed for determining whether / ֵ/ is an allophone of / ā / or not:

a. it occurs after emphatic sounds,

b. it occurs before tāʾ at-ṭanîth al-marbûṭah.

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1 Sirr ṣināʿat al-irrâb, 1 / 56.
c. it is a wāw in deep representation.

As to (a), this is not an exclusive circumstance, because such words as zak5t, ḥay5t, and sal5m (peace) may be read with tafkhīm, although no emphatic sound is present. Moreover, many words in which emphatic sounds precede /a/ are pronounced with imālah, which has been said to be the opposite of tafkhīm. Some of these words are:

qēma (to stand up),
ṭēba (to be good),
Ṭēhē (Taha).

This indicates that alif is not necessarily to be emphasized after emphatic sounds. It also indicates that the statement of Ibn al-Jazarī that "alif complies with whatever precedes it, so that it [in itself] can be described neither as a mellow nor an emphatic sound"2 is not accurate.

As for (b), it is clear that all words reported to have been pronounced with alif at-tafkhīm and written with wāw in the Qur'ān end with tāʾ at-taṃīth al-marbūṭah, except ar-ribā (interest). Concerning the occurrence of /5/ in the Qur'ān, ad-Dānī lists eight words: šal5t, zak5t, ḥay5t, rib5, ghad5t (morning), mishk5t (lamp), naj5t (safety), and man5t (the name of an idol in the Jāhiliyyah period).3

Again, it is clear that this circumstance is not exclusive. It is violated by such words as rib5, sal5m, and q5ma.

Orthographically, there appears to be some connection

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2 an-Nashr, 1/203.
3 al-Muqni fi rasām mašāhif al-ʿamsār, 57.
between writing \textit{alif} as \textit{wāw} and the presence of \textit{tā' a-tā' nīth al-marbūtah}, in the \textit{Qur'ān}, except in \textit{ribā}, as stated above. This type of connection is behind writing \textit{alif mamlūdah} in words such as \textit{marḍāt} (satisfaction), since the \textit{tā' } is \textit{maftūḥah} here.

As to (c), this is clearly an exclusive circumstance, because all reported examples have \textit{wāw} in the root, except one word which is difficult to account for, namely \textit{salām}.

<table>
<thead>
<tr>
<th>Words</th>
<th>Root</th>
</tr>
</thead>
<tbody>
<tr>
<td>q3ma</td>
<td>QWM</td>
</tr>
<tr>
<td>šal5t</td>
<td>ŠLW</td>
</tr>
<tr>
<td>zak5t</td>
<td>ZKW</td>
</tr>
<tr>
<td>ḥay5t</td>
<td>HYW</td>
</tr>
<tr>
<td>rib5</td>
<td>RBW</td>
</tr>
<tr>
<td>yad5t</td>
<td>yDW</td>
</tr>
<tr>
<td>mišk5t</td>
<td>ŠKW</td>
</tr>
<tr>
<td>naj5t</td>
<td>NJW</td>
</tr>
<tr>
<td>man5t</td>
<td>MNW</td>
</tr>
<tr>
<td>dač5</td>
<td>DCW</td>
</tr>
<tr>
<td>ġaz5</td>
<td>ġZW</td>
</tr>
<tr>
<td>sal5m</td>
<td>SLM</td>
</tr>
</tbody>
</table>

This indication of its being a conditioned allophone of the phoneme /ā/ is accepted by some modern linguists like K. Samaan. However, to Sībawayh and a few modern Arabic...
linguists\textsuperscript{7}, the phenomenon is a dialectal variant, which is specifically associated with the \textit{Hijāzi} dialect.

As a conclusion, we may say that \textit{alif at-tafkhīm} is a dialectal variant specific to the usage of \textit{al-Ḥijāz}. However, within this dialect, the /\textipa{5}/ sound is a conditioned allophone of /\textipa{ā}/. That is to say that a speaker from the \textit{Hijāz} may pronounce /\textipa{ā}/ as /\textipa{5}/ only if this \textit{alif} is a \textit{wāw} in deep representation.

\textsuperscript{6} \textit{al-Kitāb}, 2 / 404.

\textsuperscript{7} See as an example Abū Bakr al-Khalīfah, \textit{The Text of the Qur\-ān...}, 157.
Conclusion

As a conclusion, the following points may be stated:

1. The description of the point and the manner of articulation of the twenty-eight primary Arabic sounds given by the early Arab linguists is quite accurate. The modern linguists, with advanced machine facilities, arrive at the same description, except for three sounds, for which they have a different description, in the case of voicing. However, we have adduced some evidence that the description of the early Arabs is likely to be correct.

2. The term "assimilation" is not exactly equivalent to the Arabic term *idghām*, even though it is the most commonly used approximation. The term *taqārub al-aṣwāt* is a closer term, although, it is not commonly used.

3. The determination of sound changes is not limited to phonetic and phonological rules; morphological and syntactical conditions may also be involved in both causing and inhibiting assimilation.

4. Regarding assimilation between Arabic consonants, 183 examples, used in this thesis, are examined to see which type or types of assimilation occurs more commonly than others. Repetition is avoided in these examples as far as possible. The frequency of these types of assimilation is shown in the following table:
<table>
<thead>
<tr>
<th>Type of assimilation</th>
<th>Number of frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>strong → weak</td>
<td>64</td>
</tr>
<tr>
<td>weak → strong</td>
<td>119</td>
</tr>
<tr>
<td>voiced → voiced</td>
<td>67</td>
</tr>
<tr>
<td>voiced → voiceless</td>
<td>57</td>
</tr>
<tr>
<td>voiceless → voiceless</td>
<td>18</td>
</tr>
<tr>
<td>voiceless → voiced</td>
<td>41</td>
</tr>
<tr>
<td>stops → stops</td>
<td>24</td>
</tr>
<tr>
<td>stops → continuant</td>
<td>32</td>
</tr>
<tr>
<td>continuant → continuant</td>
<td>88</td>
</tr>
<tr>
<td>continuant → stops</td>
<td>39</td>
</tr>
<tr>
<td>front → back</td>
<td>59</td>
</tr>
<tr>
<td>back → front</td>
<td>40</td>
</tr>
<tr>
<td>homorganic</td>
<td>84</td>
</tr>
<tr>
<td>progressive</td>
<td>20</td>
</tr>
<tr>
<td>regressive</td>
<td>163</td>
</tr>
<tr>
<td>complete</td>
<td>130</td>
</tr>
<tr>
<td>partial</td>
<td>53</td>
</tr>
<tr>
<td>compulsory</td>
<td>39</td>
</tr>
<tr>
<td>optional</td>
<td>144</td>
</tr>
<tr>
<td>within the same word</td>
<td>67</td>
</tr>
<tr>
<td>across word boundaries</td>
<td>116</td>
</tr>
<tr>
<td>contiguous</td>
<td>163</td>
</tr>
<tr>
<td>distant</td>
<td>20</td>
</tr>
</tbody>
</table>
From this table, the dominance of consonants may be restated as follows:

A. Strengthening and weakening:

When two sounds undergo assimilation, the weaker is more commonly changed to the stronger. However the converse also occurs. Out of a total of 183, in 119 cases of assimilation is the sound strengthened, while only in 64 cases is it weakened.

1) Voicing and devoicing:

The behavior of voiced consonants with unvoiced ones is not as was expected, since in 57 cases, voiced consonants are changed to unvoiced consonants and in 41 cases unvoiced consonants are changed to voiced consonants. However in 67 cases voiced consonants are changed to other voiced consonants, and in only 18 cases unvoiced consonants are changed to other unvoiced consonants.

2) Continuant and non-continuant consonants:

In spite of the fact that stops are stronger than non-stops, it is found that in 39 cases consonants are strengthened by changing continuants to stops, and in 32 cases consonants are weakened by changing stops to continuants. However in 24 cases stops are changed to other stops, and in 88 cases continuants are changed to other continuants.

B. Direction of assimilation:

1) Consonants assimilate to homorganic consonants more than they do to consonants articulated forward or backward of
themselves. The number of cases in which this occurs is 84.

The number of cases of sounds assimilating to other sounds articulated further back is 59, of which 4 involve \( \text{h} \text{alq} \text{i} \) sounds. The number of cases of sounds assimilating to other sounds articulated forward is 40.

2) Progressive and regressive:

The occurrence of regressive assimilation is much more frequent than that of progressive assimilation. The number of cases in which regressive assimilation is involved is 163, while in only 20 cases is progressive assimilation involved.

C. Complete and partial assimilation:

Complete assimilation is more frequent than partial assimilation. The former occurs in 130 cases, and the latter occurs in 53 cases, of which 30 involve the \( ikhf\text{\AA} \): the assimilation of the vowelless /n/ to fifteen sounds within the same word as well as across word boundaries.

D. Compulsory and optional assimilation:

Optional assimilation occurs more frequently than compulsory in Arabic; therefore, in 144 cases out of 183 assimilation is optional, and in only 39 cases is it compulsory; of them 15 involve the \( ift\text{\AA}c\text{\AA}l\text{\AA} \) form, 13 involve the assimilation of the definite artical /al-/ to the shamsi sounds, and 5 involve the assimilation of the vowelless /n/ to sonorant sounds.
E. The assimilation of sounds occurs in across word boundary position more frequently than it does within the same word. 116 cases have the assimilated consonant and the conditioning consonants in two separate words; 67 cases have both consonants in the same word, and only 22 of these are involve radicals; the rest occur across morpheme boundaries.

F. Contiguous and distant assimilation:

The influence of contiguous consonants upon each other is much greater than when they occur distantly. In 163 cases, the assimilating and the conditioning consonants are close to each other, and only in 20 cases are they separated by other sounds; even in this case, 17 of them involve al-\textit{idghām al-kabīr}, which is mostly associated with the reading of Abū \textit{cAmr}. 
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