

Elocution Rules of the Holy Quran from a Phonological Aspect

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Abstract

This paper investigates one Quranic rule explained by Tajweed scholars to facilitated and perfect the reading and recitation of the Holy Quran. These rules have been explained verbally, and readers are trained to apply these rules by imitation. The current study attempted to illustrate the phonological structure of only one of these rules, called Qalqalah. To this end, the researcher collected samples of all cases where Qalqalah is applied and listened to model readers of the Holy Quran who were keen to apply Tajweed rules. The analysis showed that the two types of Qalqalah, Major and Minor, have little similarity in the manner of articulation, which accounts for the similarity that might be perceived between the two types by ordinary listeners. However, as indicated by the phonological analysis and descriptive rules in this study, there are a few differences that distinguish the two Qalqalah type, which includes the length of the schwa, position, and stress.

1-Introduction

Recitation of the Holy Quran requires the application and observation of certain rules that make its reading clear, eloquent and meaningful. Being a Holy Revelation, Quran is the word of Allah, the beneficent the merciful, and the reading of these words should be done according to rules, which are described and defined by some Islamic scholars. Czerepinski and Swayd (2006) believe that the Quran is the best way man can become closer to his Lord, and, therefore, the reading and recitation of the Quran should agree with manner in which Prophet Mohammad, peace be upon him, transmitted the message of Allah, which was in clear Arabic tongue, as stated explicitly in the Quran. Czerepinski and Swayd also argue that Tajweed rules can help distinguish proper pronunciation from improper utterances, which can cause misunderstanding of the intended meaning of the verse.

Hilouz (2008) also emphasizes the importance of Tajweed, saying that there is no doubt that learning the recitation of the Holy Quran should be done with *talaqqi*, the Arabic word for direct listening to eloquent readers of the Quran and imitating them. In addition to that, there is a need for constant practice, since learning the correct recitation cannot be done through the study of the Tajweed books alone, although they are important for identify rules theoretically, and then apply them in practice under the supervision of a well-read reader.

Ibrahim, Yusoff, and Razak (2011) emphasize the fact that appropriate recitation of the Quran is significantly important for all Muslims and can be considered indispensable in the Muslims' prayers. For this reason, they added, learning of the Quran was first done through *talaqqi*. Such a method, as they explained, was the only way to learn how to recite the Quran correctly until the

twentieth century. The authors added that new technology helped in the production of electronic systems for recording, storing, and playing both text and sound of the Quran with Tajweed rules (eloquent and correct pronunciation rules of Holy Quran).

However, when reciting, people may produce sounds that might appear to be different for the hearer, although the same verses are recited. One justification for this discrepancy in the production of sounds combination can be attributed to the use of Arabic diacritics, which Ibrahim et al. (2008) referred to as *harakat*. In their work, the writers attempted to explore the feasibility of the technique called Mel-Frequency Cepstral Coefficient (MFCC) in order to extract the features inherent to the Quranic verse being recited. They believed that the extraction of these features was crucial to prepare data for the description and classification of these sounds using MFCC as being one of the most well-known techniques used in speech recognition, which benefits from Mel scale of the frequency domain for human ear scale. Using this technique, the writer used preprocessing, framing, windowing and filtering to describe what they believed to be a significant feature of the Quranic Arabic recitation as being “long, slow pace rhythmic, monotone utterance.” (p.14).

2-Tajweed Rules

There are many Tajweed (elocution) rules for oral reading or recitation of the Quran. This study, however, will focus on the four major rules for the application of our phonological analysis. These rules include Qalqalah, Ed'gam, Iqlab and Ikhfaa. They will be explained in detail with examples using phonemic transliteration of the Arabic words and phonemic symbols.

2.1- Qalqalah (Shaking).

This is a special term for Tajweed, which refers to the disturbance in the tone of the sound one makes when pronouncing some Arabic consonants so that it is strong enough to be heard. These sounds or phonemes are confined to the five Arabic consonants (/q/, /t^s/, /b/, /dʒ/and /d/ from which the Arabic acronym *Qutb Jaddin* was made by Tajweed scholars. When producing these sounds, the air is stopped and then released to make the sound higher and distinct. This happens if the consonant is in the middle or end of a word and not followed by a vowel (not moving, stagnant or unreleased). Otherwise, the sound may not be heard clearly.

Qalqalah or Shaking is of two main types: Major and Minor: It is described as major if the sound is at the end of the word and is stressed. The words /'hʌq/ (truth) and /ə'ʃʌd/ (harder). It is minor if the sound is in the middle of the word or followed directly by other sequence sounds, as in the words /od'xolu:/ (Get in / Enter) and /'jəb.də.u:/ (and he starts).

Some studies discussed the pronunciation of the major shaking in Quran and the possible ways in which it can be examined for correctness. One of these is the study conducted by Hassan, Nasrudin, Khalid, Zabidi, and Yassin (2012). They investigated the role of pattern classification in recognizing the pronunciation of the major shaking using Multilayer Perception (MLP). In their study, they divided pronunciation sound waves of the major type into equal-length

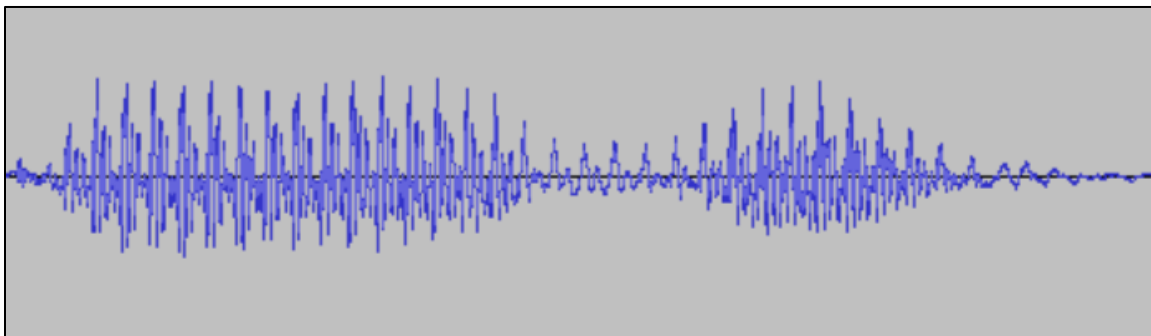
segments. Then, they extracted the key features using Mel Frequency Cepstrum Coefficient (MFCC) analysis, which is an advanced feature commonly used in automatic speech and speaker recognition. Using the MFCC, the MLP was analyzed to discriminate between correct and incorrect pronunciations. The results of their study showed the MFCC features was able to accurately distinguish between the correct and incorrect pronunciation of the major type.

3. Methodology

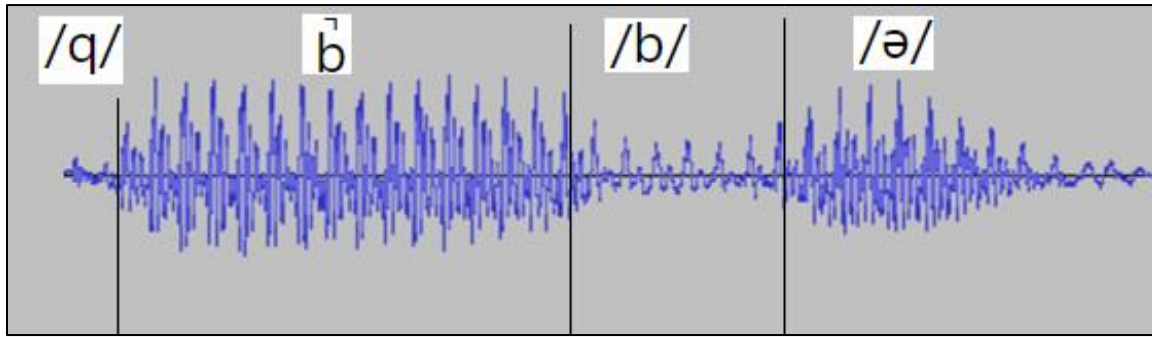
The researcher explored major Tajweed rules, which are quite a few, and since these rules cannot be discussed phonologically in one research paper, the researcher decided to focus on Qalqalah rules only, namely Major and Minor Qalqalah. The process started with the collection of certain examples that covered all the cases where Qalqalah is applied. It involved listening to different model readers reciting verses from the Holy Quran and explaining how Tajweed rules are applied. Then, the position of the Qalqalah is checked, and the changes in the sounds are explained phonologically. Finally, the researcher attempted to elicit phonological rules that illustrate what changes take place when applying the Qalqalah rules on a verse containing one of the five Qalqalah sounds. These changes are expressed using explicit, concise, symbolical phonological rules that any person with some phonological back ground can read. These rules are also written in simple language for the ordinary reader.

4. Results and Analysis

Analysis of Qalqalah of both types should illustrate what phonological processes are involved in their production. However, I thought I might as well start with showing how Qalqalah would appear on the spectrogram. This would serve as a good introduction to the idea of the one sound that can be unreleased, followed by a duplicate sound that is released and then followed by a short schwa. I have decided on the word *Waqab*, meaning *settles*. It is transcribed narrowly as [wəqəbb̄ə]. On the spectrogram below, we can see the last part of the word where the amplitude of the /b/ sound shows the full behavior of the sound where Qalqalah is applied.



To make things clearer, this spectrogram has virtual lines that nearly divide the sound /b/ that receives Qalqalah into three connected parts: unreleased, and released followed by a schwa.



What applies to the /b/ sound applies to all other Qalqalah sounds /q/, /tʃ/, /z/, and /d/. All of these sounds have virtual lines that seemingly divide the final product of Qalqalah, which, however, should be referred to sparingly since Tajweed scholars do, in fact, welcome these divisions. Now, there will be a more detailed analysis of both types, major and minor,

4.1 Analysis of Major Qalqalah

As explained earlier, Major Qalqalah appears at the end of the word if there is a stop at the end and if the sound is stressed. The following is an analysis of all possible cases where this type takes place. The five sounds on which Qalqalah appears in Quran are /q/, /tʃ/, /b/, /z/ and /d/. The examples below are written as transliterations of the Quranic verse or part of it, followed by the meaning of the verse in English and then broad and narrow transcription.

4.1.1- Plosive Uvular /q/

The first qalqalah sound is the plosive uvular /q/. The Qur'anic verse “*Molahum alhaq*” meaning “Their true Lord” ends with the sound /q/ as appears in the transcription of the verse |məʊ'læhʊm əl'hɑq|. This transcription, however, is broad and does not show the qalqalah that takes place in this verse. A narrow transcription is referred to as a phonetic representation that captures the actual realization of the word and is marked between square brackets. It shows clearly what changes do occur to the sound /q/ in the word “*alhaq*”, and would better be transcribed narrowly as [ə'l'hɑq̣q̣ə]. What happens here is that the sound /q/ is given a little shake as if it were two sounds, the first is unreleased [q̣] and the second is released [q] followed directly by a short schwa that I would symbolize as such [ə]. However, Tajweed scholars emphasize that this should not be exaggerated, meaning that the shaken sound must not be much heavier or much longer than usual and must not seem to be two different sounds. In other words, the /q/ sound is shaken by pronouncing it unreleased and then releasing it, followed by a very short schwa.

4.1.2- Pharyngealized Plosive Retroflex /tʃ/

The second qalqalah sound is the Pharyngealized Plosive Retroflex /tʃ/. The Qur'anic verse “*Wallahu min waraihim muheedh*” meaning “While Allah encompasses them from behind” ends with the sound /tʃ/ as appears in the transcription of the verse |wəlʃɑ:hʊ mɪn wə'ræihɪm mʊhi:tʃ|. Again, this transcription is too broad and does not show the qalqalah that takes place in this

verse. The narrow transcription of this verse should lead to a phonetic representation that shows the actual realization of the /t^s/ sound. It should show clearly what changes do occur to the sound /t^s/ in the word “*muheedh*”, whose narrow transcription is [møhi:t^{s̠}ə̃]. In the same way, what happens here is that the sound /t^s/ is given a minor shake as if it were two sounds, the first is unreleased [t^{s̠}] and the second is released [t^{s̠}ə̃] followed directly by a short schwa symbolized as [ə̃]. In the same way, as other qalqalah sounds, the /t^s/ sound must not be amplified and must not sound much heavier or much longer than usual and must not appear to be two different sounds. Meaning, the /t^s/ sound is shaken by pronouncing it unreleased and then releasing it, followed by a very short schwa.

4.1.3- Voiced Plosive Bilabial Stop /b/

The third qalqalah sound is the Voiced Plosive Bilabial Stop /b/. The Qur’anic verse “*Min sharri ghasighin Itha Waqab*” meaning “And from the evil of darkness when it settles” ends with the sound /b/ as can be noticed in the transcription of the verse [mɪn ʃə'ri ɣəsɪqɪn iðə wəqəb]. As said about the examples above, this transcription is too broad and the reader would not see the qalqalah that takes place in this verse. The narrow transcription or the phonetic should show clearly the representation that illustrates the actual realization of the /b/ sound. It should demonstrate visibly what changes actually occur to the sound /b/ in the word “*Waqab*”, whose narrow transcription is [wəqəbb̠ə̃]. As is the case with the previous qalqalah sounds, what happens here is that the sound /b/ is given a minor shake as if it were two sounds, the first is unreleased [b̠] and the second is released [b̠ə̃] followed directly by a short schwa symbolized as [ə̃]. However, and as stated by Tajweed scholars, the /b/ sound must not be over-pronounced and must not be given more weight or length than usual and must not appear to be two different sounds, which means that qalqalah on the /b/ sound is made by pronouncing it unreleased and then releasing it followed by a very short schwa without stopping between the unreleased and released sounds.

4.1.4- Voiced Affricate /ʒ/

The fourth qalqalah sound is the Voiced Affricate /ʒ/. The Qur’anic verse “*Wassamaai thati albrooj*” meaning “By the sky containing great stars” ends with the sound /ʒ/ as can be seen in the following transcription of the verse [wəsəmæɪ ðæt əlbʊru:ʒ]. Similarly, this broad transcription does not show the qalqalah that takes place in this verse, while a narrow transcription of the verse should make it clear and representable since it obviously shows the changes that take place on the sound /ʒ/ in the word “*albrooj*”, for which the narrow transcription is [əlbʊru:ʒ̠ə̃]. As we saw above, the changes that take place as shown by the narrow transcription are as follows: the sound /ʒ/ is given a minor shake as if it were two sounds, the first is unreleased [ʒ̠] and the second is released [ʒ̠ə̃] followed directly by a short schwa symbolized as [ə̃]. These sounds must not be overemphasized or made heavier and longer than usual, and they must not sound to be two different phonemes, and the sequence [ʒ̠ə̃] must be pronounced by releasing it and then directly releasing it followed by a very short schwa. A stop

would make it sound as if it were two different phonemes which would be contradictory to the qalqalah rules.

4.1.5- Voiced Alveolar Plosive /d/

The fifth and last qalqalah sound is the Voiced Alveolar Plosive /d/. The Qur'anic verse "*Walaqad kathaba allatheena min qablihim*" meaning "And already had those before them denied" includes that qalqalah sound /d/ in the word "*Walaqad*" which is the first words in the verse, and whose transcription is [wələqəd kə'ðəbə ələ'ðɪ:n 'qəb,lihim]. Similar to the previous examples, broad transcription would not show the reader what changes take place when producing qalqalah this verse. A narrow transcription, however, should show clearly the actual realization of the /d/ sound is captured and represented. It should presents clearly the changes that actually happen to sound /d/ in the word "*Walaqad*", whose narrow transcription is [wələqəd ̣ḍ]. This modification of the sound is similar to the previous qalqalah sounds, what happens here is that the sound /d/ includes qalqalah, which makes the sound appear to be two sounds, the first is unreleased [ḍ] and the second is released [d] followed directly by the short schwa which we agreed to use the symbol [ə̣] to represent it. This new product, as we have seen before, and as stated by Tajweed scholars, must not be overstressed and must not be given more weight or length than usual. It must not appear to be two different sounds, which means that qalqalah on the /d/ sound is made by pronouncing it unreleased and then releasing it followed by a very short schwa without stopping between the unreleased and released sounds.

▪ 4.2. Analysis of Minor Qalqalah

Differently from Major Qalqalah, Minor Qalqalah takes place if one of these qalqalah sounds /q/, /tʰ/, /b/, /z/ and /d/ comes at the end of a syllable and is connected to another sequence of words whether the same or the following verse. Minor Qalqalah does not occur if the consonant is stressed or disconnected in pronunciation from the following verse. The following is an analysis of all possible cases where this type takes place. The discussion of this section will be very similar to the previous section about the Major Qalqalah except that the examples are different due to the differences in the positions of Minor Qalqalah sounds in Quranic verses.

4.2.1- Minor Qalqalah of the Plosive Uvular /q/

The first Minor Qalqalah sound is the plosive uvular /q/. The Qur'anic verse "*Iqtarab linnas hisabuhum*", meaning "[The time of] their account has approached for the people" includes the sound /q/, which is unstressed and is followed directly by another sound /t/, as we can see in the transcription of the verse [ɪq'tərəbə hɪ'səbuhum]. This broad transcription does not show clearly the qalqalah that occurs in this verse. A narrow transcription, however, clearly what changes do occur to the sound /q/ in the word "*Iqtarab*", and would better be transcribed narrowly as [ɪq̣q̣ə'tərəbə]. What happens here is quite similar to what happens with the Major Qalqalah where that the sound /q/ is given a little shake as if it were two sounds, the first is unreleased [q̣] and the second is released [q] followed directly by even a shorter schwa than that with the Major

Qalqalah, which I would symbolize as such [ǎ]. As is the case with other qalqalah sounds, it is emphasized by Tajweed scholars it should not be overstressed in such a way that would make it sound much heavier or much longer than usual Or would make it appear to be two different sounds. The /q/ sound is shaken by pronouncing it unreleased and then directly releasing it followed by a much shorter schwa.

4.2.2- Minor Qalqalah of the Pharyngealized Plosive Retroflex /tʕ/

The second Minor Qalqalah sound is the Pharyngealized Plosive Retroflex /tʕ/. The Qur’anic verse “*Watatmainnu qulubuhum bi thikri Allah*” meaning “Whose hearts are assured by the remembrance of Allah” has the sound /tʕ/ in the middle of the verse, followed by another sound /m/, as can be noticed in the transcription of the verse |wətətʕməʔmʊ qʊʔlʊbʊhʊm bɪʔðɪkrɪʔlæh|. Again, this transcription is too broad and the reader cannot see how the qalqalah is done in this verse. The narrow transcription of this verse should lead to a phonetic representation that represents the actual realization of the /tʕ/ sound. It should show clearly what changes do occur to the sound /tʕ/ in the word “*Watatmainnu*”, whose narrow transcription is |wətətʕʔǎməʔmʊ|. In the same way, what happens here is that the sound /tʕ/ is given a minor shake as if it were two sounds, the first is unreleased [tʕ̠] and the second is released [tʕǎ] followed directly by even a shorter schwa symbolized as [ǎ]. This sounds must not be over-pronounced and must not sound much heavier or much longer than usual and must not appear to be two different sounds.

4.2.3- Voiced Plosive Bilabial Stop /b/

The third Minor Qalqalah sound is the Voiced Plosive Bilabial Stop /b/. The Qur’anic verse “*Wa ith yarafaa Ibrahim Al qawa id min al bait*” meaning “And [mention] when Abraham was raising the foundations of the House” includes the sound /b/ as can be noticed in the transcription of the verse |wə ɪð jɑrfəʔʕ ɪbrɑ:hɪ:m əlqəʔwə ɪdə|. This broad transcription does not tell the reader obviously what happens with the qalqalah in this verse. The narrow, however, transcription or the phonetic should show clearly the representation that expresses the actual realization of the /b/ sound. It should demonstrate visibly what changes actually occur to the sound /b/ in the word “*Ibrahim*”, whose narrow transcription is [ɪbb̠ǎrɑ:hɪ:m]. As is the case with the previous qalqalah sounds, what happens here is that the sound /b/ is given a minor shake as if it were two sounds, the first is unreleased [b̠] and the second is released [b] followed directly by a much shorter schwa symbolized as [ǎ]. However, and as stated by Tajweed scholars, the /b/ sound must not be overemphasized and must not be given much weight or length than usual. It must not appear to be two different sounds, which means that qalqalah on the /b/ sound is made by pronouncing it unreleased and then releasing it followed by a very short schwa without stopping between the unreleased and released sounds.

4.2.4- Minor Qalqalah of the Voiced Affricate /ʒ/

The fourth Minor Qalqalah sound is the Voiced Affricate /ʒ/. The Qur’anic verse “*Lo shiita lattakhathta alaihi ajra*” meaning “If you wished, you could have taken for it a payment” has the sound /ʒ/ as we can see in the following transcription of the verse |ləʊ ʃɪʔtə lətʔtə xəðtə əʔleɪhɪ

əʒrɑ. Similarly, this broad transcription does not show the qalqalah that takes place in this verse. However, a narrow transcription of the verse should make it clear and expressible since it noticeably shows the changes that take place on the sound /z/ in the word “*ajra*”, for which the narrow transcription is [əʒ̣ẓə̣rɑ]. As we saw above, the changes that take place as shown by the narrow transcription are as follows: the sound /z/ is given a minor shake as if it were two sounds, the first is unreleased [ẓ] and the second is released [z] followed directly by a short schwa symbolized as [ə̣]. The sequence [ẓẓə̣] must be pronounced, without being exaggerated, by releasing it and then directly releasing it followed by a very short schwa. This process has no stop, which would make it sound as if it were two different phonemes which would be contradictory to the qalqalah rules.

4.2.5- Minor Qalqalah of the Voiced Alveolar Plosive /d/

The fifth and last Minor Qalqalah sound is the Voiced Alveolar Plosive /d/. The Qur’anic verse “*Qul in adri matuadoon aqareeb*” meaning “Say, “I do not know if what you are promised is near” includes the qalqalah sound /d/ in the word “*adri*” which is the second words in the verse, and whose broad transcription is [qʊl in ədri mə'tu: ədu:n əqə'rɪ:b]. Broad transcription, as explained earlier, would not show the reader what changes take place when producing qalqalah this verse. A narrow transcription, however, should show clearly the actual realization of the /d/ sound is captured and represented. It should presents clearly the changes that actually happen to sound /d/ in the word “*adri*”, whose narrow transcription is [əḍḍəri]. This modification of the sound is similar to the previous qalqalah sounds, what happens here is that the sound /d/ includes qalqalah, which makes the sound appear to be two sounds, the first is unreleased [ḍ] and the second is released [d] followed directly by the short schwa which we agreed to use the symbol [ə̣] to represent it. This new product, as we have seen before, and as emphasized by Tajweed scholars, must not be amplified and must not be given much weight or length than usual and must not appear to be two different sounds, which means that qalqalah on the /d/ sound is made by firstly pronouncing it unreleased and then releasing it followed by a very short schwa without stopping between the unreleased and released sounds.

5. Phonological Processes Included in Qalqalah

The sections above presented a verbal description of the qalqalah processes, which showed the reader clearly how Major and Minor Qalqalah are produced, what changes take place, and what environment each one of them tends to occur in. In this section, the verbal description is converted into a phonological description of the processes and converted into rule phonological rules that make sense in the field of phonetics and phonology.

▪ 5.1 Major Qalqalah Processes

Major Qalqalah tends to appear only at the end of the word if it has a complete stop at the end and if the sound is stressed. The rules are presented one by one for each sound.

5.1.1 Plosive Uvular /q/

The /q/ sound becomes [q̄q̄ə̃] when it occurs at the end of a word with a stop at the end and is stressed. This can be phonologically represented as follows:

$$/q/ \rightarrow [q̄q̄ə̃] \quad / \quad - \quad \left[\begin{array}{c} +\text{Stressed} \end{array} \right] \quad \#$$

The rule now reads /q/ becomes unreleased and then released followed by a short schwa if it occurs at the end of a stressed syllable.

5.1.2 Pharyngealized Plosive Retroflex /tʰ/

Similarly, the /tʰ/ sound becomes [t̄ʰt̄ə̃] when it occurs at the end of a word with a stop at the end and is stressed. This can be phonologically represented as follows:

$$/tʰ/ \rightarrow [t̄ʰt̄ə̃] \quad / \quad - \quad \left[\begin{array}{c} +\text{Stressed} \end{array} \right] \quad \#$$

The rule now reads /tʰ/ becomes unreleased and then released, followed by a short schwa if it occurs at the end of a stressed syllable.

5.1.3 Voiced Plosive Bilabial Stop /b/

Similarly, the /b/ sound becomes [bb̄ə̃] when it occurs at the end of a word with a stop at the end and is stressed. This can be phonologically represented as follows:

$$/b/ \rightarrow [bb̄ə̃] \quad / \quad - \quad \left[\begin{array}{c} +\text{Stressed} \end{array} \right] \quad \#$$

The rule now reads /b/ becomes unreleased and then released, followed by a short schwa if it occurs at the end of a stressed syllable.

5.1.4 Voiced Affricate /ʒ/

The /ʒ/ sound becomes [ʒ̄ʒ̄ə̃] when it occurs at the end of a word with a stop at the end and is stressed. This can be phonologically represented as follows:

$$/ʒ/ \rightarrow [ʒ̄ʒ̄ə̃] \quad / \quad - \quad \left[\begin{array}{c} +\text{Stressed} \end{array} \right] \quad \#$$

The rule now reads /ʒ/ becomes unreleased and then released, followed by a short schwa.

5.1.5 Voiced Alveolar Plosive /d/

In the same way, the /d/ sound becomes [ḍd̥] when it occurs at the end of a word and is stressed. This can be phonologically represented as follows:

$$/d/ \rightarrow [ḍd̥] / \left[\begin{array}{c} +\text{Stressed} \end{array} \right] \#$$

The rule now reads /d/ becomes unreleased and then released, followed by a short schwa if it occurs at the end of a stressed syllable.

However, we can combine the rules above into one general rule that can be used to describe phonologically the process of Major Qalqalah.

$$\left[\begin{array}{c} q \\ t^s \\ b \\ ʒ \\ d \end{array} \right] \rightarrow [-\text{Release}][+\text{Release}]+\ddot{a} / \text{---} [+Stressed] \#$$

The above rule reads as follows: The sounds /q/, /t^s/, /b/, /ʒ/, and /d/ become unreleased and then released, followed directly by a short schwa if they occur stressed at the end of the word. Once this happens, the sounds /q/, /t^s/, /b/, /ʒ/, and /d/ are pronounced with a Major Qalqalah, as is required by the Tajweed rules for the recitation of the Holy Quran.

▪ 5.2 Minor Qalqalah Processes

Minor Qalqalah can appear at the end of a syllable that is connected to another sequence of sounds whether in the same or the following verse. As mentioned earlier, for Minor Qalqalah to occur, the consonant must be unstressed and is connected in pronunciation to the following verse. The rules are presented one by one for all the five sounds.

5.2.1 Plosive Uvular /q/

The /q/ sound becomes [q̣q̥] when it occurs at the end of an unstressed syllable and is connected to another sequence of sounds, whether the same or the following verse. If the consonant is stressed and disconnected in pronunciation from the following verse, Minor Qalqalah does not apply. This can be phonologically represented as follows:

$$/q/ \rightarrow [\bar{q}q\check{\text{ə}}] / \text{---} \left[\text{-Stressed} \right] \# \left\{ \begin{array}{c} C \\ V \end{array} \right\}$$

The rule now reads /q/ becomes unreleased and then released, followed by a very short schwa if it occurs at the end of an unstressed syllable and is connected to other sounds.

5.1.2 Pharyngealized Plosive Retroflex /tʰ/

Similarly, the /tʰ/ sound becomes [tʰ̣q̣ṣ̣] when it occurs at the end of a syllable and is connected to another sequence of sounds, whether in the same or the following verse. If the consonant is stressed or disconnected in pronunciation from the following verse, Minor Qalqalah does not apply. This can be phonologically represented as follows:

$$/tʰ/ \rightarrow [tʰ̣q̣ṣ̣] / \text{---} \left[\text{-Stressed} \right] \# \left\{ \begin{array}{c} C \\ V \end{array} \right\}$$

The rule now reads /q/ becomes unreleased and then release, followed by a very short schwa if it occurs at the end of an unstressed syllable and is connected to other sounds.

5.1.3 Voiced Plosive Bilabial Stop /b/

In a similar way, the /b/ sound becomes [bḅṣ̣] when it occurs at the end of a syllable and is connected to another sequence of sounds, whether the same or the following verse. If the consonant is stressed or disconnected in pronunciation from the following verse, Minor Qalqalah does not occur. This can be phonologically represented as follows:

$$/b/ \rightarrow [bḅṣ̣] / \text{---} \left[\text{-Stressed} \right] \# \left\{ \begin{array}{c} C \\ V \end{array} \right\}$$

The rule now reads /b/ becomes unreleased and then released, followed by a very short schwa if it occurs at the end of an unstressed syllable and is connected to other sounds.

5.1.4 Voiced Affricate /ʒ/

The /ʒ/ sound becomes [ʒʒ̣ṣ̣] when it occurs at the end of a syllable and is connected to another sequence of sounds, whether the same or the following verse. If the consonant /ʒ/ is stressed or

disconnected in pronunciation from the following verse, Minor Qalqalah does not occur. This can be phonologically represented as follows:

$$/z/ \rightarrow [\text{z̄z̄}^{\text{ə}}] / \text{---} [\text{-Stressed}] \# \left\{ \begin{array}{c} \text{C} \\ \text{V} \end{array} \right\}$$

The rule now reads /q/ becomes unreleased and then released, followed by a very short schwa if it occurs at the end of an unstressed syllable and is connected to other sounds.

5.1.5 Voiced Alveolar Plosive /d/

In the same way, the /d/ sound becomes [d̄d̄^ə] when it occurs at the end of a syllable and is connected to another sequence of sounds whether the same or the following verse. If the consonant is stressed or disconnected in pronunciation from the following verse, Minor Qalqalah does not occur. This can be phonologically represented as follows:

$$/d/ \rightarrow [d̄d̄^{\text{ə}}] / \text{---} [\text{-Stressed}] \# \left\{ \begin{array}{c} \text{C} \\ \text{V} \end{array} \right\}$$

The rule now reads /d/ becomes unreleased and then released, followed by a very short schwa if it occurs at the end of an unstressed syllable and is connected to other sounds.

However, we can combine the rules above into one general rule that can be used to describe phonologically the process of Minor Qalqalah.

$$\left[\begin{array}{c} q \\ t^{\text{c}} \\ b \\ z \\ d \end{array} \right] \rightarrow [\text{-Release}] + [+\text{Release}] + \text{ə} / \text{---} [\text{Stressed}] \# \left\{ \begin{array}{c} \text{C} \\ \text{V} \end{array} \right\}$$

The above rule reads as follows: The sounds /q/, /t^c/, /b/, /z/, and /d/ become unreleased and then released, followed directly by a very short schwa if they occur at the end of an unstressed syllable and are connected to other sounds. If this happens, the sounds /q/, /t^c/, /b/, /z/, and /d/ are pronounced with a Minor Qalqalah, as is required by the Tajweed rules for the recitation of the Holy Quran.

6. Similarities and Differences

The two Qalqalah rules appear to be similar with only minor differences. However, what makes them distinct from each other is their position. There is some similarity in the manner in which Qalqalah is carried out. The Qalqalah sound in both types behaves as if it were two sounds when it is not released at first and then released. The first difference is the length of the schwa. Minor Qalqalah exhibits a very short schwa at the end of the sound. The second difference is that in Major Qalqalah their pronunciation stops, while in Minor Qalqalah pronunciation continues onto other sounds. The third difference is that the sound in Major Qalqalah is stressed while in Minor Qalqalah, it is unstressed. The following table shows the similarities and difference between Major and Minor Qalqalah.

	Major Qalqalah	Minor Qalqalah
Similarities	- Release + Release	- Release + Release
Differences	Followed by a short schwa	Followed by a much shorter schwa
	Occurs syllable-end with a stop	Occurs syllable end followed by another sound
	Stressed	Unstressed

7- The Five Qalqalah Sounds in Different Environments

As clearly explained above, the five Qalqalah sounds (q, tʃ, b, ʒ, and d) are pronounced with Major and Minor Qalqalah in special environments. The Major Qalqalah is when the sound is stressed and occurs syllable-end with a stop while the Minor Qalqalah is when the sound is unstressed and occurs syllable-end followed by another sound. Otherwise, those five sounds are pronounced normally without Qalqalah. There are numerous cases in the Holy Quran, where these sounds are pronounced without Qalqalah because they do not meet the above-mentioned conditions. These are just a few examples of a case where these sounds do not receive Qalqalah.

Qalqalah Sounds	English Meaning	Transliteration	Transcription
q	“but Allah brought them together.”	“Walakinna Alaah allaf baina <u>qulubihim</u> ”	wə, læ' kɪnə ə' lɑ:hə ' ələfə beɪnə qʊ' lu: bɪhɪm
tʃ	“and I seek refuge for her in You and [for] her descendants from Satan , the expelled”	“Wa annai u' eethaha wa thuriyyatihah min al <u>Shaitan</u> alrajeem”	wə ə' nɪ: ʊ' ʔɪ: ðʊhə wə' ðʊ, rɪ' jətɪhə mɪ' nɪʃeɪt'ɑ:n əɾ' rəʒɪ:m
b	“and caused her to grow in a good manner”	“Wa anbatah nabatan hasana”	wə ən' bətəhə nə' bætən ' həsənə

3	“and I seek refuge for her in You and [for] her descendants from Satan, the expelled ”	“Wa annai ueethaha wa thuriyyatihah min al Shaitan alrajeem ”	wə ə'ni: ʊ'ʔi:ðʊhə wə'ðʊ,rɪ'jətɪhə mɪ'niʃeɪtʰɑ:n ə'r'rəʒɪ:m
d	She said, "It is from Allah”	Wa qalat: “huwa min indillah	wə'qɑ:lə'həwə mɪ'ʔɪndɪ'læh

The sounds /q/ in the sequence qʊ'lu:biħim, /tʰ/ in the sequence mɪ'niʃeɪtʰɑ:n, /b/ in nə'bætən, /z/ in ə'r'rəʒɪ:m, and /d/ in the sequence mɪ'ʔɪndɪ'læh are all pronounced without Qalqalah due to the absence of the Qalqalah environment. None of them occurs at the end of a syllable as it is one significant condition for Qalqalah to take place.

7. Summary

This paper discussed one of the significant issues of the Holy Quran recitation in the light of Tajweed rules, and since these rules are too many to include in one work such as this, the paper discussed only Major and Minor Qalqalah from a phonological perspective. This Tajweed process applies to the five Qalqalah sounds /q/, /tʰ/, /b/, /z/, and /d/ whose pronunciation becomes different in isolation from that within a sequence of sounds. Each Qalqalah sound is pronounced unreleased and then released and followed by schwa, which makes the sound behave as if it were two sounds. The difference between the two types is that Major Qalqalah is stressed and has a total stop, and not followed by other sounds, while Minor Qalqalah has a much shorter schwa and it is not stressed but must be followed by other sounds. The new sound that comes out shows a minor shake which justifies the listener's impression that the emerging is seemingly a sequence of two sounds, not one. Other cases where these sounds do not receive Qalqalah have also been illustrated with examples.

8. Recommendations

In the course of this work, the researcher focused on just one aspect of Tajweed rules, Qalqalah, and the researcher would identify other recommend topics to be investigated with short- and long-term priorities. The short-term priority topics would be Id'gham (merging), Iqlab (the change of one letter into the other one), Ikhfaa (Concealment of sound), and prolongation of vowels. On the other hand, there are long-term priorities such as the phonological analysis of the ten readings of the Holy Quran, which refer to the style of recitations recognized by ten different schools of readings what is called Schools of Qira'at. Another long-term priority is the discussion of these in the light of morphology to see how the words behave when Tajweed rules are applied.

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