

Arabic Phonology in Tajweed Studies (A Study in Light of Phoneme Theory)

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Abstract

This article examines phonology as a fundamental stage in linguistic studies, focusing on the functions of sounds and their role in conveying meaning, unlike phonetics, which concentrates on the physical aspects of articulation. The article highlights that the Arabic heritage, particularly books on Tajweed (the science of Quranic recitation) and Quranic readings, includes in-depth studies of sounds, their points of articulation, and their functions, closely resembling modern phonological concepts. It also discusses the concept of phonology, the various Arabic terms proposed for it, and its key areas, such as phoneme, syllable, stress, and intonation. The article emphasizes that scholars of Tajweed preceded modern linguists in identifying functional phonetic phenomena, such as contextual changes in sounds, assimilation, vowel shift, lengthening, and elision, with a keen awareness of the relationship between adjacent sounds and their impact on meaning and performance. The article concludes that the efforts of scholars of Tajweed made a significant scientific contribution to preserving Arabic and standardizing its phonetic system, and deserve re-evaluation and recognition of their value in contemporary linguistic studies.

Keywords: Phonology, science, language, Tajweed, sounds.

Introduction:

Modern linguists consider the study of sounds as the first step in any linguistic study; where linguistic studies begin with the study of sounds in their phonetic aspect, which is concerned with describing the sound, its articulation apparatus, and the method of pronunciation. Then it moves to the phonological aspect, which is concerned with studying the functions of sounds and their role in changing meaning morphologically, grammatically, and semantically; through studying the phoneme and its role in the speech chain, then moving to sound variations such as syllables and intonation.

If we return to our heritage, we will find in the books of Tajweed scholars and Quranic readings numerous investigations dedicated to studying the sounds of letters in isolation and composition. Therefore, we decided that the topic of our intervention should be about phonology and the reality of its existence in Arabic linguistic studies by shedding light on the efforts of Tajweed scholars in this field, based on a number of questions, the most important of which are:

1-What is the nature of the relationship between phonetics and the science of Tajweed?

2-Are there phonological investigations in ancient Arabic phonetic studies?

3-What are the efforts made by Tajweed scholars in the service of phonological studies?

The great importance of this topic made us research it while pursuing the following objectives:

1-Demonstrating the importance of the topic in modern linguistic studies.

2-Knowing whether Tajweed scholars preceded modern linguists in studying phonological investigations.

3-Re-evaluating the efforts of Tajweed scholars in phonetic studies and giving them the status they deserve.

The Concept of Phonology and Its Main Investigations

1-The Concept:

Phonology is a science that is not concerned with objective sound events, nor does it pay attention to problems related to the nature of sound itself. Rather, it is a science that devotes all its attention to sound elements that lead to differences in meaning. It is "a science that looks at language as an organization or a coherent set of sounds connected by abstract relationships, revealed by purely mental operations and purely contrastive values"¹. Accordingly, phonology is a linguistic science that studies the sounds of a particular language to arrive at the methods of their compatibility and their compositional system, and what is related to that in terms of differences².

The linguist "Trubetzkoy" (d. 1938) - one of the leaders of the Prague School - is considered one of the pioneers in phonological research; where he clearly explained the task of phonology, which is manifested in the search for sound elements within a set of relationships imposed by the system of the studied language, leading to an explanation of the function performed by the elements collectively³.

Moreover, phonology is concerned with knowing what phonetic evolution the language undergoes in its structures in general. In this science, the value of sound returns to its semantic function and its effect on the phonetic system of the language, not to its material phonetic characteristics that it possesses when pronounced individually⁴.

In this manner, the functions of sounds are concerned with knowing what evolution speech undergoes with the passage of time, and this is represented in⁵:

a-Substitution that occurs in speech sounds by replacing sounds with others.

b-Transfer that occurs in speech sounds according to phonetic rules.

c-Alteration that occurs in speech sounds due to phonetic changes.

2-The Term Phonology in Arabic:

The term phonology has been translated into Arabic into several terms, including "the science of sound functions," which is the term coined by the two linguists "Muhammad Abu al-Faraj" and "Saleh al-Qarmadi" in two books published in "1966": "Introduction to the Study of Philology" by Muhammad Abu al-Faraj, and "Lessons in Arabic Phonetics" by the French Orientalist "Jean Cantineau," translated by linguist Saleh al-Qarmadi⁶. Before that, the linguist "Mahmoud al-Sa'ran" had called it "functional linguistic phonetics" in his book "Linguistics: An Introduction for the Arab Reader."

The linguist "Tammam Hassan" called it in his book "Research Methods in Language" "the science of phonetic formation." The linguist "al-Tayyib Bakush" in his translation of the book "Keys to Linguistics" by "Georges Mounin" called it "phonemics," while the two linguists "Youssef Ghazi" and "Majid Nasr" used the term "phonetism" in their translation of the linguist "Ferdinand de Saussure's" book "Course in General Linguistics."

Here it becomes clear to us that scholars of Arabic sounds did not agree on a single translation of the term, which may not be agreed upon even among its Western originators. Therefore, the translations of our linguists came differently according to the different approaches they drew from⁷.

The translation that seems to have received approval from most Arab linguists is the term "science of sound functions," perhaps because it alludes to the effect of sound on meaning, which is one of the most distinctive characteristics of this science, and because it follows a

familiar pattern in naming some sciences, such as: principles of jurisprudence, history of literature, etc.⁸. In light of this difference in translations, the Arabization of the term "phonology" remains the most commonly used among researchers.

3-Investigations of Phonology:

The phonetic organization consists of a limited number of sounds and uses only unique sound units combined in a sentence whose parts are connected by common relationships and certain bonds that are not visible to the naked eye but seen by the mind. These bonds arise from the adjacency of sounds in their positions, their being in this or that letter, the possibility of their actual or theoretical existence in this or that syllable, the frequency and rarity of their occurrence, the degree of their use, frequency and rarity, their ability to realize certain sounds, their emergence into existence, how they interact in composition, the contingencies that occur in syllables, methods of intonation, the behavior of sounds at junctions between words, and at the end or beginning of a speech group⁹. From here we can present the most important investigations of phonology in the following axes: phoneme, syllable, stress, intonation.

First: The Phoneme

The phoneme is a contemporary linguistic term that appeared in 1872 AD with the stage of phonology pioneers, and moved from European and American countries at the beginning of the last century to become one of the most important phonetic investigations that enriched linguistic studies with many opinions, theories, and applications¹⁰. This term has been translated into Arabic into several terms, including "the distinctive sound unit," which is the term used by the authors of the "Dictionary of Modern Linguistics Terms" as a definition for the Arabized word¹¹.

The Arabic Language Academy translated it as "linguistic sound." The linguist "Saleh al-Qarmadi" translated it as "phonetim," and the linguist "Muhammad al-Khuli" followed suit, translating the term as "phonetim" and "specific sound," while others chose other terms such as: "phoneme," "pronouncer," "phonated sound"¹².

Just as this term was a subject of disagreement among Arab linguists, it was and still is a subject of debate among foreign linguists; as they differ in defining its concept according to the different linguistic approaches they follow. Each group of scholars defines this concept in a way that aligns with their general approach to linguistic study. The following is a brief presentation of the most important of these opinions and orientations:

a-The First Opinion:

The origins of this opinion go back to "Saussure," who criticized the representation of sounds by writing, concluding that the determination of the phoneme must be based on two foundations: organic and auditory. The organic description of sound by monitoring the articulatory organs is not sufficient; one must also rely on the auditory effect it has as a distinguishing feature¹⁴.

This is what the English scholar "Daniel Jones" went with; he defined the phoneme as: "a family of sounds interrelated in qualities in a particular language, which are used in a way that prevents one member from occurring in a word in the same context where any other member of the same family occurs"¹⁵.

Two important things emerge in this definition: that the phoneme is a group of sounds, and that these sounds do not exchange positions as long as they belong to one phoneme. The function of the phoneme according to this opinion is to distinguish between words and grant these words different linguistic values, whether morphological, grammatical, or semantic¹⁶. The word "tab" (repented) is different from the word "tab" (became good) because there is a

semantic difference between the two words resulting from changing the /t/ phoneme to the /t'/ phoneme.

Distinguishing between words can occur in different ways, including replacing one phoneme with another, as in the previous example. It may also be by adding or subtracting a phoneme, as in "shaddad" and "shadd," where adding the /d/ phoneme in the first gave the word a different meaning from the second word.

Jones's theory is called the "material theory" or "organic structural theory." Some criticisms have been directed at it, including:

1-The difficulty of verifying this theory in some cases, as it may be difficult to judge whether two speech sounds are similar or not, because sound has a complex nature; it may be similar to another sound in one aspect and different in another.

2-The ambiguity of the theory, because it is impossible to determine the degree of difference that prevents two sounds from belonging to one phoneme.

b-The Second Opinion:

This opinion is represented by the mental-psychological school; this school sees that the phoneme is a single sound that has an abstract mental image that the speaker can recall in his mind and tries - unconsciously - to pronounce it in actual speech. However, he may succeed in realizing this mental image and expressing it with a real sound, and may fail in other cases, so he tries to come up with the closest sound to this image even if it does not match it completely¹⁷.

"Baudouin de Courtenay" took this approach in his interpretation of the phoneme; he defined it as a mental image. On this basis, he distinguished between two types of phonetics: "linguistic phonetics" and "psychological phonetics," considering that the first is concerned with studying actually spoken sounds, while the second aims to study the mental image of sounds.

"Edward Sapir" is also considered one of the most important supporters of this opinion. He has a famous research in which he used the term "ideal sounds" to denote phonemes from mental perspectives. He believes that ideal sounds are formed by the individual's sense of the existence of important relationships between real sounds, which are more realistic and realizable for the average speaker than the real sounds themselves¹⁸.

c-The Third Opinion:

This opinion is known as the "distinctive features theory," developed by the linguist "Trubetzkoy"; he believes that phonemes are sound units that cannot be divided into consecutive sound elements from the perspective of the particular language the researcher is studying¹⁹. He also believes that phonemes are nothing but signs or distinctive features, and can only be known by referring to their functions in the structure of each language separately. The American linguist "Bloomfield" agrees with "Trubetzkoy's" opinion in his definition of phonemes; he also considers them the smallest units that perform the function of differentiating between the meanings of words²⁰.

So phonemes, according to this opinion, are not sounds; rather they are sound characteristics that the speaker can produce through training and linguistic experience, and can recognize them in the actual speech chain.

d-The Fourth Opinion:

The holders of this opinion believe that the phoneme is not a material or psychological reality; rather it is an abstract imaginative unit. Among those who adopted this opinion is "Firman

Twaddell," who believed that the phoneme has no existence from the organic aspect nor from the mental aspect; rather it is an abstract unit that the researcher extracts from articulatory events after abstracting them and arriving from them at a whole or independent unit²¹.

Despite this existing disagreement among the previous opinions in defining the concept of the phoneme, some linguists believe that all these opinions ultimately lead to similar results and lead to specific scientific goals. These results and goals are summarized as follows²²:

1-The phoneme is a sound unit that distinguishes one word from another; that is, it differentiates between words from phonetic, morphological, grammatical, and semantic aspects.

2-The phoneme is an important means that facilitates the process of teaching foreign languages. The actual spoken sounds in any language are many, while its phonemes are fewer in number than these actually spoken sounds.

3-The idea of the phoneme has an important role in inventing alphabets or writing systems in an easy and accurate manner; that is because a single phoneme may be realized in actual pronunciation in several forms according to the phonetic context.

Second: The Syllable

The syllable represents a higher degree than the phoneme on the scale of phonological sound units, because the syllable is composed of phonemes arranged in a certain order according to each language²³. So the syllable, in terms of its ideal or typical structure, is larger than the sound and smaller than the word.

Linguists have taken different sides in their definition of the syllable. Some took the purely phonetic side; that is, actual pronunciation, while others adopted the phonological side as a criterion for judgment; that is, the functional side of the syllable and its role in word construction in a particular language.

Those who took the purely phonetic side followed three paths in their interpretation of the syllable, including the physiological or organic path of pronunciation. They defined the syllable as: "a chest pulse"²⁴, in that a person may feel a kind of pressure while pronouncing the syllable. However, this criterion is not suitable when syllables are connected to each other in the speech chain.

Another group relied in its definition of the syllable on the auditory aspect of speech; as the syllable for them is clearer in pronunciation and has more impact on hearing, due to its usually containing a vowel, which represents the peak of auditory clarity compared to other sounds. However, this path also cannot be relied upon, as a syllable may be devoid of a vowel. The third group took the acoustic side in determining and defining the syllable, relying on the vibrations with special characteristics in the air caused by pronouncing the syllable. However, this path is also difficult to rely on because these vibrations are intertwined with each other to a high degree.

The most accurate and logically closest criterion in determining the syllable - in the opinion of some linguists - is the phonological criterion, which is based on two important matters²⁴:

1-Looking at syllables in terms of their structure, components, and modes of succession; as they usually represent bundles in the speech chain.

2-That this be done in each language separately, as each language has its own characteristics and features in the succession of these bundles.

Third: Stress

Stress is the emphasis on a specific syllable in a word for the purpose of increasing its auditory clarity²⁵. This is done by pronouncing it more clearly and distinctly relative to the

other syllables adjacent to it.

Stress in this sense is a feature of the word, or an element that distinguishes it from others. Stress is considered a phoneme in some languages because it differentiates between one meaning and another.

Arab researchers believe that Arabic linguistic studies are devoid of systematic research on stress, because stress, as it appears, was not used to differentiate between morphological meanings or semantic meanings at the level of the single word. While modern studies conducted by Orientalists and some contemporary Arabs indicate that stress in standard spoken Arabic, especially in the Quran, has a fixed position related to the number and type of syllables. Stress in Arabic words is a function of the morphological pattern. In the pattern "fa'il" (doer), stress falls on the /fa/; in the pattern "maf'ul" (done to), stress falls on the /u/; and in the pattern "mustaf'il," stress falls on the /taf/. As for stress in sentences and speech groups, it has grammatical functions²⁶.

The most important stress rules in Arabic are²⁷:

1-Stress falls in a monosyllabic word on its only syllable, such as: qum (stand up), (CVC).

2-Stress falls in bisyllabic words on their first syllable regardless of its type, such as: qama (he stood), (CVV/CV).

3-Stress falls in trisyllabic words on their second syllable if it is medium or long, such as: a'anat (she helped) (CV/CVV/CVC). However, if the second syllable is short, then stress falls on the third syllable whatever its type, such as: nasir (helper) (CVV/CV/CV).

The same applies to words with many syllables, and stress in all cases does not exceed the third syllable. It must be noted that the rules mentioned above are approximate rules, not like grammar and morphology rules in consistency, because the modern study that produced them is a modern study that does not cover all the multiple levels of Arabic speech.

Fourth: Intonation

"Intonation in terminology is the music of speech. When speech is delivered, it is covered with musical colors that differ from (music) only in the degree of harmony and agreement between the internal tones that make a harmonious whole. The music of speech appears in the form of rises and falls, or sound variations, or what we call speech tones"²⁸.

Some scholars distinguish between two types of voice pitch variation²⁹:

1-Tone: It is the effect resulting from increases or decreases in the number of vibrations at the word level.

2-Intonation: It is the combination of tones within a group of words at the sentence level.

Word tones are always changing from one performance to another, from one situation to another, and from one psychological state to another. Tones have a range in terms of rise and fall that the trained ear senses. When the degree of musical coloring rises, high intonation results; when these degrees fall, low intonation results; but if these degrees maintain one level, the result is a level tone.

As for the tone in terms of constancy and change in its ascent and descent, it has the following types³⁰:

1-Level tone: If it is constant, its symbol in tonal writing is: -----.

2-Rising tone: If it goes upward, its symbol is:

3-Falling tone: If it goes downward, its symbol is:

4-Rising-falling tone: If it rises then falls, its symbol is:

5-Falling-rising tone: If it falls then rises, its symbol is:

Intonation translates the speaker's state of anger, astonishment, or desire³¹, and it has many functions in the process of social communication between speakers. The most important of

these functions are:

1-The grammatical function: This is the basic function of intonation; it is the effective factor in distinguishing between structural patterns and differentiating between their grammatical types such as conditional sentences, interrogative sentences, exclamatory sentences, etc.

2-The semantic or contextual function: Where the variation of tones - according to the variation of social situations - indicates states or personal viewpoints in the communication process between individuals. This function appears in cases of satisfaction, acceptance, rebuke, sarcasm, anger, etc.; where the phrase and sentence come with different intonation patterns.

The Science of Tajweed in Light of Phoneme Theory

1-The Roots of Phoneme Theory among the Arabs

Despite the novelty and modernity of this theory, a number of linguistic researchers believe that it was established in the studies of ancient Arabs but under different names. However, many modernists hesitate to accept this fact, which prompted others to say that they were not at the level of modern linguistics to reach the results that the latter reached. It seems that this statement is not without exaggeration, and that it came as a result of not consulting many sources of Arab phonetic heritage, and hastening to issue judgments before delving into issues, deepening their study, and investigating their aspects. Perhaps this topic is an appropriate place to discuss and examine those judgments, by attempting to shed light on the roots of phoneme theory in Arabic, especially in Tajweed investigations.

If we return to Arabic scholars, we find "Sibawayh," the author of "Al-Kitab," who saw that the main Arabic letters are twenty-nine letters, and other sounds branch from them. This appears in his statement: "The basic letters of Arabic are twenty-nine letters (...) and they become thirty-five letters with letters that are branches, and their origin is from the twenty-nine, and they are frequent, taken with and considered beautiful in reciting the Quran and poetry. They are: the light nun, the hamza between-between, the alif that is severely imitated, the shin that is like jim, the sad that is like zay, the alif of emphasis (...) and they become forty-two letters with letters that are not approved and not frequent in the language of those whose Arabness is accepted, and are not approved in reading the Quran or poetry. They are: the kaf that is between jim and kaf³¹, the jim that is like kaf, the jim that is like shin, the weak dad, the sad that is like sin, the ta that is like tha, the za that is like tha, the ba that is like fa. These letters totaling forty-two, good and bad, originate from the twenty-nine; they cannot be distinguished except by oral transmission"³².

Through an in-depth reading of "Sibawayh's" text, it becomes clear to us that the phoneme theory that modern linguistics reached was found in one form or another among our scholars in the folds of his presentation of Arabic phonemes. In this regard, researcher "Ahmad Mukhtar Omar" believes that the phoneme theory in ancient Arabic studies emerged from observing the different manners of the text, and scholars observed that despite the fact that the sounds used in speech are of unlimited variety, speakers and listeners are usually aware of only a small number of independent sound patterns³³.

Sibawayh's statement that branch letters can only be distinguished by oral transmission reveals to us that Arabic scholars were aware that these sounds are merely positional or dialectal variations of Arabic language sounds, and that they do not lead to a change in meaning. Therefore, they made them secondary and did not assign written symbols to them. These indications show that there is a similarity between what our scholars arrived at in dividing sounds into roots and branches, and some foundations of modern phoneme theory,

which considers articulatory differences as positional variation of a single sound.

Investigations of Phoneme Theory among Tajweed Scholars

1-Phonemic Changes in Vowels:

1-1-Types of Vowels in Arabic:

Vowels in Arabic are of two types³⁴: root vowels, which are the fatha, damma, kasra, and the long alif, waw, and ya; and branch vowels, which are: imala (inclination), ikhtlas (shortening), rawm (hinting), and ishmam (lip rounding).

As for root vowels, they undergo qualitative changes when they occur in composition, such as the emphasis (tafkhim) and attenuation (tarqiq) of the alif. Tajweed scholars have established a rule for knowing the emphasis and attenuation of the alif. This appears in Ibn al-Jazari's statement: "As for the alif, the correct view is that it is not described by attenuation or emphasis, but rather according to what precedes it, as it follows it in attenuation and emphasis. What occurs in the speech of some of our imams about its absolute attenuation, they only mean to warn against what some non-Arabs do in exaggerating its pronunciation until they make it like waw, or they mean to point out where it is attenuated. As for some later scholars' explicit statement about its attenuation after emphatic letters, this is an illusion..."³⁵. This means that root vowels for Tajweed scholars are attenuated after attenuated letters and emphasized after emphatic letters. Therefore, attenuation and emphasis are not inherent in Arabic vowels but are phenomena that occur to them depending on what precedes them.

Modern phonetic studies came to confirm what the majority of Tajweed scholars maintained: that short vowels and long vowels, especially the alif, follow what precedes them in attenuation and emphasis. One contemporary scholar of Arabic sounds states: "The fatha, for example, may be emphatic, may be attenuated, and may be between attenuation and emphasis. It is emphatic with the sounds of articulation (itbaq), which are sad, dad, ta, and za. It is in the middle state between emphasis and attenuation with qaf, ghayn, and kha. But it is attenuated in other phonetic positions. So we have, according to actual pronunciation, three examples of fatha, or six when length and shortness are taken into consideration, since the long fatha undergoes what the short fatha undergoes in terms of emphasis.

The same thing applies to kasra and damma, long and short. They are emphatic with the sounds of articulation, between emphasis and attenuation with qaf, ghayn, and kha, but they are attenuated with other sounds. So we have three kasras (or six), and three dammas (or six). Arabic vowels, therefore, by this contextual consideration, are nine or eighteen³⁶. It appears to us from what has been said that the issue of emphasis and attenuation in root vowels is agreed upon between Tajweed scholars and modern sound scholars, with some minor differences that are merely differences in viewpoints.

Branch vowels are considered sound variations of root vowels, and they are either qualitative or quantitative changes, and are divided into:

1-1-1-Imala (Inclination): Imala is considered one of the qualitative changes that affect root vowels, especially the alif and its sister the fatha. Imala is to incline the fatha toward the kasra and the alif toward the ya. This is the famous definition among reciters. As for the general definition, it was mentioned in the Dictionary of Quranic Sciences, stating that imala: "is to incline a vowel toward another vowel, whether it is fatha, damma, or kasra"³⁷. This is a comprehensive definition that includes all three types of imala occurring in Arab speech. Imala according to Tajweed scholars is of two types: major imala and minor imala.

a-Major Imala: It is bringing the fatha close to the kasra and the alif close to the ya without complete conversion or exaggerated fullness, such that if the degree of imala increased in this type, the alif would become a ya. Major imala has several names, including: "severe imala,

lying down, spreading, pure imala, fullness, curved alif...etc."³⁸.

b-Minor Imala: It is producing the letter between moderate opening and severe imala. This intermediate imala is more difficult to pronounce than major imala because it is a middle stage between opening and severe imala.

Tajweed scholars, in their definition and division of imala, agree to a large extent with modern phonetic studies. Here is a definition by one of the contemporary scholars of Arabic sounds: "With opening, the tongue is almost level in the floor of the mouth. When it begins to rise toward the upper palate, that position which is called imala begins. The furthest the front of the tongue reaches in its ascent toward the upper palate is that measure usually associated with kasra, whether long or short. So there are stages between opening and kasra, not one stage. For this reason, the ancients divided imala into two types: light imala and severe imala"³⁹.

The presence of imala in Tajweed investigations is the greatest proof of their awareness of the issue of harmony between sounds, as it is the most important reason for imala. We find this awareness in books of recitations: "The argument for whoever performed imala is that he brought the high letter close to the ya so that the tongue would work in pronunciation from one place"⁴⁰. The approximation here is between sounds for the sake of harmony. Therefore, they prevented imala with emphatic letters because these letters ascend to the upper palate just as the alif ascended, so they dominated the alif and prevented it from going toward the ya, so the sound would not harmonize. Due to their keenness on sound harmony, they refrained from performing imala on the alif with emphatic letters, just as they performed imala with kasras and ya seeking sound harmony.

1-1-2-Ikhtlas (Shortening): It is one of the quantitative changes that affect vowels; it is hiding the vowel and weakening the sound with it, not removing it. Tamam Hassan explains that the vowel in ikhtlas is shorter and weaker, and almost loses voicing, as happens in whispering and murmuring⁴¹. Ikhtlas occurs most often in damma and kasra, and occurs in fatha rarely. The vowels that are for construction and inflection use two types in damma and kasra: one is fullness and lengthening, and the other is shortening and lightening.

This shortening and lightening only occurs in damma or kasra. As for fatha, there is only fullness, and fatha is not lightened by shortening, just as they did not delete the alif in endings and rhymes as they deleted ya and waw in genitive and nominative cases, just as they substituted alif in accusative. The vowel is shortened for two reasons:

a-To indicate that it is temporary, not permanent.

b-Due to dislike of consecutive vowels in a single word.

1-1-3-Rawm (Hinting): It is pronouncing part of the vowel, and is considered one of the quantitative changes that affect vowels. Tajweed scholars prevented rawm in the fatha vowel on the grounds that it is a light vowel; when part of it comes out, the rest comes out, and because it does not accept partitioning as do kasra and damma with their heaviness. Rawm shares with ikhtlas the partitioning of the vowel and differs from it in that it does not occur in the fatha vowel, occurs only in pause, and also what remains of the vowel in rawm is less than what is lost.

1-2-Vowel Lengthening:

Tajweed scholars detailed the discussion of vowel lengthening within the chapter of lengthening rules. Lengthening (madd) is the prolongation of the vowel for a specific amount. The reasoning of Tajweed scholars for vowel lengthening agrees with modern phoneticians. In this context, "Ibrahim Anis" believes that the reason for lengthening lies in the keenness that the vowel sound not be affected by the adjacency of the hamza or assimilation. He says: "Because combining a vowel sound and hamza is like combining opposites, as the former

requires that the air passage with it be free and open and that the glottis opening be relaxed and open when pronouncing it, while pronouncing the hamza requires the glottis opening to close tightly followed by sudden opening.

Prolonging the vowel sound with hamza gives the speaker the opportunity to prepare for pronouncing the hamza, which requires great muscular effort and a sound process that completely contradicts the sound position required by vowel sounds⁴².

1-3-Adding Vowels:

The addition of vowels among Tajweed scholars came in two types:

First: Necessary for the meeting of two sukuns (consonants without vowels), and the difference between recitations is then in the added vowel, such as His Almighty's saying: "an uqtulu" (that they kill) (An-Nisa/66). Abu Amr, Abu Asim, Hamza, and Ya'qub read it with kasra on the nun, while the rest read it with damma, because when two sukuns meet from two words and the first of the second is a hamzat al-wasl with damma, it is permissible to move the first sukun with kasra according to the principle of meeting two sukuns, and with damma for harmony so they don't go from kasra to damma. As for the letter between them, it is sukun, and sukun is not a strong barrier, so it is not counted; it is as if the kasra is adjacent to the damma⁴³.

If the first sukun is a waw preceded by fatha and it is a plural pronoun, the majority use damma, even if the hamzat al-wasl after it is with damma, such as His saying: "ishtaraw ad-dalalah" (they purchased error) (Al-Baqarah/16); because when they needed to move the waw, they moved it with a vowel that is from it, because damma in it is easier than kasra. If the waw is not a plural pronoun, it is most often moved with kasra, such as His saying: "aw ukhriju" (or they were expelled) (An-Nisa/66), to distinguish between the two waws, and the pronoun waw may be moved with kasra in analogy to it.

Second: It is a permissible addition, and it comes in three types:

a-That the consonant tends toward a vowel that suits it, and this occurs in throat sounds, and most often they tend toward the fatha vowel, such as His saying: "yawma za'nikum" (the day of your departure) (An-Nahl/80). Nafi', Ibn Kathir, Abu Amr, Abu Ja'far, and Ya'qub read "za'anikum" with fatha on the ayn, while the rest read it with sukun⁴⁴.

b-That the letter tends toward what resembles what precedes it, such as His saying: "mimma 'allimtu rushdan" (of what I have been taught of right guidance) (Al-Kahf/66). Ibn Amir read "rushuda" with damma on the ra and shin.

c-That the consonant before the paused consonant tends toward the vowel that the pause consumed, which is called transfer (naql), and the condition for the transferred vowel is that it be damma or kasra, not fatha.

2-Phonemic Changes in Consonants:

1-1-Tajweed Scholars' Classifications of Assimilative Phenomena Specific to Consonants:

Tajweed scholars detailed the discussion of general changes that affect consonants. They studied all forms of influence that may occur between them, but they used a single term to express the totality of those forms, which is the term "idgham" (assimilation). Although some scholars only use this term in places where the sound is completely absorbed into the adjacent sound and no trace of it remains, they use other terms to express other forms of influence that do not reach the degree of complete absorption, such as the term "ikhfa" (hiding) and "taqrib" (approximation)⁴⁵.

This is what modern phonology calls "the compositional relationships of the phoneme"; it is the relationship of the phoneme with what is adjacent to it within the compositional axis of units and sentences. Either the relationship allows the phoneme to retain all its sound

characteristics, or it leads to changing one or more characteristics in it or changing it itself. This happens by virtue of an important phonological principle called "the principle of adjacency." Among the phonological phenomena occurring in phonemes by virtue of this principle is "assimilation," which Tajweed scholars dealt with under the name "idgham." Assimilation is a common pattern of change that occurs to a phoneme due to its connection with another adjacent phoneme, and is based on the phonemes together having common articulatory features. This can be exemplified by a group of phonological phenomena mentioned by Tajweed scholars in the chapter of assimilation, which are⁴⁶:

1-1-1-Progressive, Regressive, and Reciprocal: This is by converting the first to match the second, while leaving some trace from the first letter, such as His Almighty's saying: "man yahdi Allah" (whom Allah guides) (Al-A'raf/178), and His saying also: "min wara'iham" (from behind them) (Al-Jathiyah/10). Here the nasalization (ghunnah) is maintained while assimilating the nun into the ya and waw.

This division of assimilation agrees to a large extent with the division of modernist scholars of Arabic sounds, with differences in terminology and naming. We find these scholars use the term "regressive influence" and "progressive influence" corresponding to "regressive" and "progressive." Some modernists used the word "assimilation" to express the phenomenon of idgham, as we find with "Ahmad Mukhtar Omar," who used the term "progressive assimilation."

1-1-2-Incomplete and Complete Assimilation: The influence between sounds may sometimes not reach the point where the sound is absorbed into the other sound; rather, a trace of the first sound remains. From here, Tajweed scholars divided assimilation into incomplete and complete.

1-1-3-Assimilation of Identical, Homorganic, and Similar Sounds: The division of Arabic sounds into identical, homorganic, and similar, and the division of assimilation according to that, indicates Tajweed scholars' awareness of sound characteristics and their deep understanding of their relationships with each other. Indeed, when they meet, they are either in agreement in place and manner of articulation, so they are identical; or in agreement in place of articulation but different in characteristics, so they are homorganic; or they are close in place of articulation or characteristics but not in agreement, so they are similar; and after that they are distant in everything, so they are described as distant. Undoubtedly, assimilation depends on the amount of closeness and distance between sounds; the closer they are, the better the assimilation, and so on.

1-2-The Issue of Influence Between Characteristics:

Tajweed scholars were concerned with the issue of sound characteristics being influenced by each other when adjacent. A voiced sound may affect an open sound, and a nasal sound can affect an oral one.

Their concern with what letters cause in each other when they are adjacent in a single word or when words connect in context in terms of influence is evidence of their refined sense and precise observation. Their concern yielded good results, as they preserved the Arabic tongue from subtle error that creeps into the Quran, because speakers' tongues tend toward ease and economy of effort. Had the matter been left without controls, the accumulation of those deviations would have led to changing Arabic pronunciation and distancing it from its original form that was prevalent at the time of the Quran's revelation. However, the efforts of recitation scholars in oral transmission, and the efforts of Tajweed scholars in studying Arabic sounds and clarifying the characteristics of eloquent pronunciation, complemented the efforts of Arabic scholars, which together led to preserving the Arabic language alive, far from the phonetic evolution that leads to changing its features.

1-3-Phonemic Variations of Consonants:

The phoneme is subject to different variations, some of which are compulsory due to context or adjacency, which is called compositional variation; some are dialectal and some are speech-defect related. As for the second and third, Tajweed scholars were not concerned with them, while they devoted many investigations to the first, including: rules of the sukun nun and tanwin, rules of lam and ra, and rules of the sukun mim.

1-3-1-Rules of Sukun Nun and Tanwin: Although Tajweed scholars did not distinguish between letter and sound terminologically, they realized well that the nun that precedes letters of clear pronunciation (izhar) is not the same as the nun that precedes letters of assimilation (idgham), hiding (ikhfa), and the letter of conversion (iqlab). In assimilation, the nun is absorbed into the letters after it, which are collected in "yarmalun," and this absorption is either complete as in "lam and ra," which is what is called in modern phonology complete assimilation, or the absorption of the sukun nun into the letters after it "yumin" is partial due to the remaining nasalization, which is called partial assimilation in modern phonological terminology.

As for the states of sukun nun and tanwin in hiding with the remaining letters of the alphabet except the letters of assimilation and the letter ba, they are phonemic variations of the nun, and we can say they are allophones.

As for conversion (iqlab), it is, in the expression of modernists, assimilation in terms of place of articulation; as assimilation brought the two sounds "nun" and "ba" into one column, such as: "inba'atha" and "inbara," which are pronounced: "imba'atha" and "imbara," by transferring the sound "nun" under the influence of ba from its original column to the ba column by converting it to "mim." Likewise, the same applies to the sukun mim with the two letters of assimilation and labial hiding, "mim" and "ba"; they are sound variations of the phoneme "mim."

1-3-2-Rules of Lam and Ra: The original state of lam is attenuation (tarqiq), and the original state of ra is emphasis (tafkhim). However, their stability in their original state or their change depends on the composition or context subject to the principle of adjacency. This means that the phoneme "lam" and "ra" have their variations determined according to the phonemes adjacent to them. This is what Tajweed scholars detailed; they identified the phonemes that affect lam and limited them to three phonemes: "sad," "ta," and "za." If they precede it and are open (with fatha), lam must be emphasized. Likewise, the "lam" in the word of majesty "Allah": if preceded by the fatha phoneme, it must be emphasized, and other than these cases it is attenuated.

The same applies to "ra." They determined the cases in which it is attenuated - mentioned earlier - and in which it deviates from its original emphasis. If the ra sound is attenuated, it is a phonetic equivalent of the emphatic ra sound.

After attempting to bring these investigations closer to modern phonology, it can be said that Tajweed scholars dealt with the issue of the phoneme and its variations in a precise and comprehensive manner, and they were able to reach controlled scientific results that modern phoneticians have not deviated from.

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