# Between Theory, Representation and Practice of *Maqām*: Rethinking the Representation of the Arabic *Maqāmāt*

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ARTICULATING the connection between music theory and practice has for many centuries been the subject of intellectual enquiry concerning the musical practices associated with *maqām*[1]—practices which are historically associated with Arab, Persian and Turkish musical repertoires, spanning the region stretching from Mesopotamia to Egypt (Shiloah 2001, 15; Davis 2004). Theoreticians of *maqām* have explored questions of tone systems, genres and scalar structures since at least as early as the ninth century CE (Maalouf 2011, 24). For example, one of the main aims of Ibn al-Munajjim (writing in the eighth and ninth centuries) was to explore differences of opinion over the number of notes in a scale, contrasting the contemporary practice of the time with Greek music theory (Wright 1966, 27). This issue was also of primary concern at the 1932 Conference of Arabic Music held in Cairo (Thomas 2007). In both of these cases, the relationship between theory about scales and musical practice was contentious; this continues to be the case.

One of the key issues that has arisen in the literature, and that has been addressed in a variety of proposed methods, has been the division of the octave: the notes used in music performance and how those notes are represented visually in various treatises, essays and books on the topic. Regarding the division of the octave, Signell (1977, 44–45) describes the problems of differences between theoretical models and actual practice; he acknowledges that the division of the octave and the "correct" intonation of certain intervals remain contested. He identifies five reasons why theoreticians continue to be frustrated: differences arising from geographical practice; differences between genre-specific conventions for articulating notes; the melodic environment in which notes appear; differences in the requirements of particular compositions; and the individuality of the performer's taste. He also points out that musicians have different tolerance levels regarding intonation and that one needs to allow for the limitations of certain instruments, for example, the fixed frets of the *tanbūr*[2] and the use of levers on the *qānūn*[3] as opposed to fretless instruments such as the *'ūd*[4] and violin (Signell 1977, 45; see also Racy 2003, 111). The complexity of the music traditions associated with *maqām* thus presents a problem for theorists attempting to conceive, and articulate, musical conventions and patterns. Signell (2001, 55) later clarifies his discussion of the intervals and pitches used in Turkish *makam*:

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[1] *Maqām* refers to the melodic organization and presentation of pitches associated with a number of musical traditions.

[2] The *tanbūr* is a long-necked lute.

[3] The *qānūn* is a plucked zither.

[4] The *'ūd* is a fretless short-necked lute.

Performers often find traditional theory puzzling. The *makamlar* they play and hear show more flexibility than traditional theory would imply. It is common knowledge among performers that pitches in performance vary from the theoretical pitches. Precise measurements confirm that performed intervals vary from one musical context to another and sometimes depart consistently and substantially from theoretical intervals.

While acknowledging that any representational model has both benefits and limitations for conceiving and representing musical practice, the following paper will propose a new model for representing the division of the octave and the notes of a number of *maqāmāt*. The model I propose is primarily descriptive in purpose, as opposed to prescriptive. I developed it as a result of learning to play the *'ūd* with Sydney-based musician Joseph Tawadros; the subjects of *maqāmāt* and how to execute a successful *taqsīm* have been dominant features of our lessons.[5] Because my teacher is based in the Egyptian expression of *maqām*, my research is particularly informed by this tradition and my teacher's understanding of it; nevertheless, I hope that this theoretical model may be useful for other expressions of the *maqāmāt* and its associated musics, without conflating regional, national or individual difference. The model presented in this paper therefore explores theoretical problems informed and stimulated by both practical and pedagogical concerns.

I wish to qualify that this research is limited to the representation of modal scales only. The system of representation I propose here is not intended to capture temporal aspects of musical representation; rather it is only to be used for describing pitch relationships within comparative modes. Moreover this system is not a substitute for the necessary practical guidance given in the teacher-student paradigm, but could be useful as a tool for the acquisition and retention of the *maqāmāt*. I agree with Signell (1977) that theoretical models cannot substitute for practice. However, I do not believe that theory needs to be framed as diametrically opposed to practice; rather these two seeming polarities can instead be conceived as informing and even dependent on each other. In this paper I discuss some of the issues pertaining to the representation of the basic structural elements of the *maqāmāt* and propose a new model by which one might conceive of these modes, in the hope of continuing these conversations. I will provide a brief exploration of the ways the notes of the *maqāmāt* have been derived and represented, both in antiquity and in the present day, before presenting my model for articulating the nuances of the *maqāmāt*.

## DERIVING THE NOTES AND THEORIZING THE OCTAVE

The division of the octave has historically been an issue and challenge in the discussion of the *maqāmāt* and the connection between theory and practice. There are a number of differences between theoreticians. For example, Iraqi philosopher Al-Kindī recognized a theoretical twelve-note octave (Maalouf 2011, 103); Persian philosopher Al-Fārābī worked with a system of two octaves consisting of forty-four notes (Maalouf 2011, 123–24); and Iraqi

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[5] Traditionally, *taqsīm* refers to an unaccompanied improvisation.

philosopher Al-Urmawi divided the string into seventeen unequal parts, creating an octave of eighteen notes (Maalouf 2011, 198). In more recent times, the division of the octave has been highly contested. Some scholars have argued that a fifty-three-note octave is necessary to represent the full spectrum of tones used in the *maqāmāt* (Yarman 2007, 44), where the twenty-four-note division of the octave is seen as a crude imposition arising from a Western agenda, bearing little resemblance to the reality of the practical realm (Racy 2003, 106). Aware of these tensions, some important discussions have taken place around the division of the octave into twenty-four notes, which some scholars argue is the defining feature of the modern school of Arabic music (Shiloah 1981, 39).

Nineteenth-century scholar Michael Meshqa (Mishāqā) is considered by many to be the first to introduce a music system based on the twenty-four-note octave, though according to Shiloah (1981, 26), Mishāqā credits his teacher with this innovation. Maalouf (2011, 70) observes that the earliest mention of the twenty-four-note scale appeared in the eighteenth century, ascribed to Jean Benjamin Laborde in 1780. Maalouf (2011, 212) recalls an interesting experiment conducted by Mishāqā, in which he performed live on two *tanbūrs*—one tuned to the twenty-four-note equal division of the octave and the other tuned to the Greek sixty-eight-minutes division—to demonstrate the erroneous use of the twenty-four-note division for the practical performance of Arabic music. Mishāqā's experiment anticipated the disappointment of the 1932 Cairo Convention, where one of the aims was the standardization of the octave.

It appears that Arabic names were given to each of the notes of the twenty-four-note division around the nineteenth century CE (Touma 1996, 18). The impetus to accept and articulate an octave of twenty-four notes came from a desire to place Arabic music on an equal footing with Western music. Thomas (2007, 3) argues that this was the aim of a group called the *effendiya* at the 1932 Conference on Arabic music, a group made up of aristocratic amateur musicians who believed Arabic music to be corrupted, caught in a state of "ignorance and disorder." They hoped to rescue this music and elevate it on a plane similar to that of Western music. The pressure from the West is illustrated by Maalouf (2011, 23), who notes that the number of Egyptian students undertaking Western music instruction was 25% more than those learning Arabic music in the early part of the twentieth century. Despite the influence of Western musical theory, many musicians and theorists continue to resist what might be perceived as Western impositions. For example, Touma (1996, 18) argues that "the Western method of notation is in many respects inaccurate and inappropriate for the transcription of Arabian music."

Thomas (2007) gives an account of the 1932 Cairo Conference, in which he details the nature of assignments given to specific committees and the outcomes of these assignments. One group at the conference was specifically given the task to "experiment and make recommendations on the use of an equally tempered 24-tone musical scale" (4). Thomas recounts that although the organizers were happy with the progress made in certain fields, "they were disappointed that no consensus was reached in the Musical Scale, Rhythmic and Melodic Modes and Musical Instruments committees" (5). They were disappointed that a

consensus could not be reached on a theoretical model that could encompass the totality of the practical realm (7). However, education institutions in Egypt have since employed the twenty-four-note chromatic scale as part of their pedagogy (6). There are problems with this approach and most scholars normally include caveats that acknowledge that the notes of the twenty-four-note chromatic scale, particularly the quartertone notes, are approximations only. Spector (1970) attributes fixed pitches to this idea of the twenty-four-note octave, but then qualifies her study by saying that the "quarter-tone steps are approximations of this ideal," admitting that in performance notes would vary "from approximately 20–70 Cents" (248). Racy (2003, 107) notes that some musicians feel that the division of the octave into twenty-four equal parts has a detrimental impact on the generation of *tarab* (musical ecstasy), an essential quality, aesthetic and outcome of the performance practice of this music.

Signell (1977, 37) has warned that "the desire to bring order out of chaos requires one to overlook many details which tend to detract from the beauty of the abstract model." It seems from the literature on this topic that theoreticians' desire to construct a comprehensive system is often frustrated by the diversity of the practical realm, the ever-changing nature of musical forms, and the creativity of individuals.

It may be difficult, if not impossible, to reconcile the difference between the practical discourse and the theoretical discourse within this music, let alone trying to impose a foreign system designed for a different purpose.[6] In light of pressures from the West, Maalouf (2011, 233) concludes her book by stating that she believes that Arabic music theory is going in one of two directions: firstly, towards a system that employs the twenty-four-note octave and integrates Western music theory (which she argues introduces a different musical language to the historical evolution of Arabic theory); or secondly, towards a preservation of the fundamental principles of Arabic music, including the mobility of its notes and the scalar structure of the *maqāmāt*. This paper wrestles with these fundamental tensions: between the historical developments of Arabic music theory and the diversity of contemporary practice. In the model that I propose, I seek to pursue a median position between the either/or binary suggested here by Maalouf.

## DERIVING AND REPRESENTING THE NOTES

Several methods of representation have historically been employed throughout the region from Mesopotamia to Egypt to articulate the notes used in *maqām* practice. Early Arabic music theorists often used the *ʿūd* as the basis for deriving their theoretical and representational models. Al-Munajjim derived the notes of the *maqāmāt* with respect to how they related to finger positions on the *ʿūd* (Wright 1966). As shown in Example 1, Wright (1966)

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[6] This is not to say that there are no problems with the notation of Western forms either. The difficulties between the abstracted model and performances on non-tempered Western instruments such as one would find in a chamber ensemble have been well documented. However, issues of notation are arguably even more problematic in these traditions where the division of the octave is much more intricate, and performance practices are more regionally nuanced.

|  | **Strings** | | | |
|  | *bamm* | *mathlath* | *mathnā* | *zīr* |
| Open String | p | s | w | r' |
| 1st Finger | q | t | p' | s' |
| 2nd Finger | r | u | x | y |
| 3rd Finger |  | v | q' | t' |
| 4th Finger | s | w | r' | v' |

**Example 1.** The relationship between notes and strings according to Al-Munajjim, reproduced from Wright (1966, 27–28).

has tabled the notes as they relate to the strings set out by Al-Munajjim, as part of a discussion on the list of octave and unison notes (the apostrophe on pitches represents unison notes).

In the ninth century CE, Al-Kindī was the first theorist to use the *Abjad* shorthand as a pitch notation, which attributed letters of the Arabic alphabet to numbers used to represent pitch (Yarman 2007, 44). Yarman (2007) observes however that this method was only ever used as a theoretical tool and the ensuing four-hundred-year gap in musical treatises on the subject of pitch relationships perhaps testifies to a lack of a perceived need for these theoretical models. The *Abjad* notation nevertheless continued to influence the development of pitch theory, including Al-Urmavi's 17-tone, Pythagorean tuning in the thirteenth century and the current Turkish theoretical model, based on the works of Ezgi, Arel and Yekta (Yarman 2007, 44).

The influence of Western musical theory has to varying to degrees influenced the ways theorists have approached the representation of the notes used in *makam/maqām*.[7] In Turkey, Western notation has been popular since 1826, when Sultan Mahmud II reorganized the army along Western lines and abolished the musical unit of the Janissary force (Ayangil 2008, 401). Previous graphic notation systems included the *Hamparsum* system in the eighteenth century CE (Signell 1977, 22). Notably, this system only required one accidental, suggesting that it assumed that performers would have sufficient knowledge to be able to articulate the various intonations found in performance practice, despite their absence in the abstracted model (ibid.). Signell noted however that Western notation has now completely eclipsed the *Hamparsum* system of notation and the representation of pitch relationships in the articulation of the *maqāmāt* (3, 23). Thus contemporary Turkish musical theory is dominated by the system articulated by Yekta, Ezgi and Arel (22). Signell observes that these three scholars agree on a series of five basic intervals, which can be used to construct all the major *maklamar*. These five intervals equate in Western terms to: 1) small half-tone, 2) large half-tone, 3) small whole-tone, 4) large whole-tone, and 5) augmented second. The Ezgi-Arel notation system employs the use of six accidentals and the Turkish concept of a *koma* to convey the microtones employed in the Turkish *maklamar*.[8] The symbols appear in Example 2. Using this system of symbols, Signell (1977) represents the Turkish *makam Rāst* as shown in Example 3.

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[7] *Makam* is the Turkish spelling of the Arabic *maqām*; *maklamar* is the plural of *makam*.
[8] A *koma* is approximately 1/9 of a tone, a "discrete increment" (Signell, 1977, 22).

**Example 2.** Symbols used to represent microtones in Turkish music theory, reproduced from Signell (1977, 24).



**Example 3.** The Turkish *makam Rāst*, reproduced from Signell (1977, 34).

Davis (2004) also employs a similar notation system to represent the *maqāmāt* used in the Tunisian *Nūba*.[9] Davis employs a series of accidentals adopted from theorist Salah el-Mahdi, where ♯ and ♭ represent the quarter tones between ♮ and ♭, respectively. Additionally, Davis uses the symbols ♭ and ♭ to indicate the lowering of a pitch by 30% and 40% respectively (12). Davis notes however that these symbols are understood to represent pitches of varying degrees informed by regional, individual, and national tastes and conventions (ibid.). Using this system, the scale of *nubāt dīl* is represented as in Example 4, with ties indicating the internal *ajnās* within a scale.[10]

Scholars have repeatedly noted the problem of assigning the notes of the *maqāmāt* to fixed pitches and especially Western equivalents. Touma (1996, 18) observes that Western notation (even considering the addition of various accidentals), while capable of communicating certain information to Western musicians approaching Arabic music, fails adequately to represent the *maqāmāt*, and fails to visualize the interrelationships of various
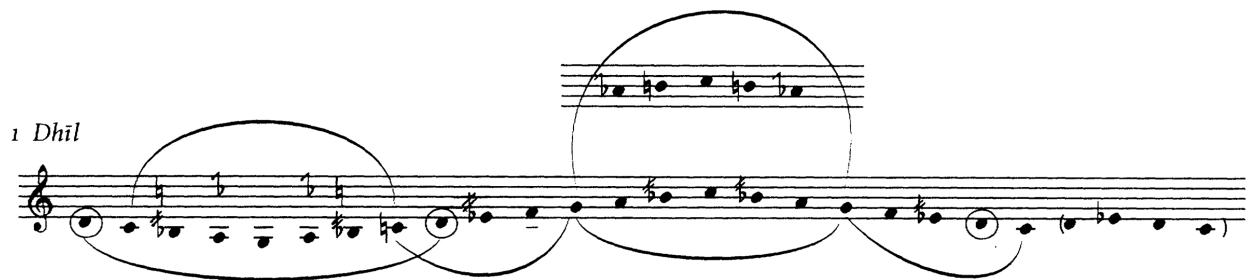


**Example 4.** The Tunisian *nubāt dīl*, reproduced from Davis (1996, 428).

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[9] *Nūba* refers to the scale forms of the music associated with the Arab music of the Maghreb (Davis 2004, 2).
[10] *Ajnas* refer to "sets" of notes, the trichords, tetrachords and pentachords that make up a *maqām*.

*ajnās* within each *maqām*. Modified forms of Western graphic representation, such as the Ezgi-Arel notation system (Signell 1977) and Ali Ufkî Bey (Ayangil 2008, 403–411), continue to attract criticism, where the gulf between theory and practice remains unresolved (Ayangil 2008, 411).

## A DIFFERENT MODEL

While acknowledging Signell's (1977, 44–45) five observations on why theoretical models fail to adequately account for discrepancies within the *maqām* system,[11] I propose the following method as a descriptive guide to the representation of the *maqāmāt*. The aim of this approach is to devise a system that is descriptive enough to be useful, but not so accurate as to conflate regional difference for the purposes of a neat theoretical model. Here I begin by constructing and establishing the notes used based on Al-Fārābi's five-string version of the *'ūd* tuned in perfect fourths. I will also borrow from Al-Kindī's discussion of the notes used in Arabic music, where he uses the concept of both "mobile" and "fixed" notes (Maalouf 2011, 105), although my work contains different pitch references which closely interact with contemporary practice. The purpose of this exercise is to create a model that uses both fixed and mobile notes to depict certain conventions regarding the *maqāmāt*, but also to accommodate and express regional differences, so that these differences are not conflated.

In order to derive the fixed notes used in this system, I begin by referring to the five-stringed *'ūd*. Historically, the lowest string was tuned according to the lowest note that the singer could comfortably pitch, with the higher strings tuned in perfect fourths (Maalouf 2011, 56). If the *bamm* or lowest string is tuned to A, then the notes of the open strings of the *'ūd* will equate to A, D, G, C, and F respectively.[12] These notes can be seen in Figure 1, which depicts the open notes of the strings of the *'ūd*, in addition to the octave equivalents located approximately.
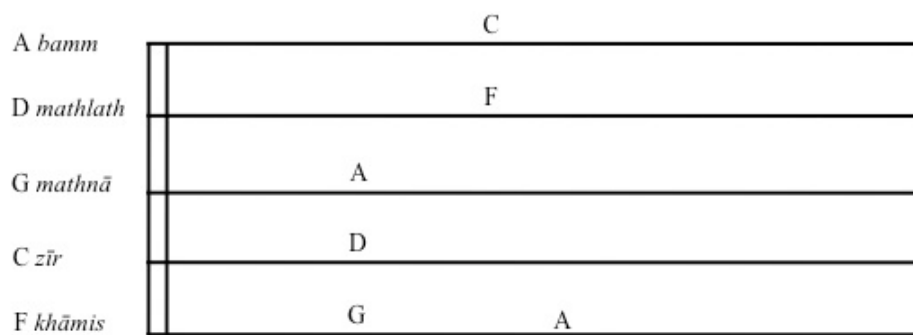


**Figure 1.** Open string pitches and octave equivalents.

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[11] It should be acknowledged also that there is always a gap between representational models and the sounds they represent.

[12] There is still great diversity in the articulation of the *bamm* string, however it has also become common to tune this *string* to A=440, especially for musicians who engage in cross-disciplinary musical projects.

**Figure 2.** Open strings with octave equivalents and the addition of E and B notes.

These initial notes located on the open strings and their octave equivalents located on the fingerboard form the basis of the 'fixed' notes in this representational model. With the strings tuned in perfect fourths, and identifying the octave equivalents on the fingerboard, it is possible to derive the first five 'fixed' notes (listed in an ascending scale order): A, C, D, F, G. Those notes are equivalent to the first, minor third, fourth, sixth and seventh scale degrees in Western equal temperament where A is considered the tonic. In Figure 1, the smallest distance between two notes, such as G and A, is a tone; thus if one were to apply this logic to each of the notes, one can derive the B and the E notes as a tone away from the A (*bamm*) and D (*mathlath*) strings respectively. The addition of these notes is represented as approximations on the strings of Figure 2.

The above eight notes, which can be derived from the tuning of the *'ūd* and from the fact that the smallest distance between two of these notes is a tone, provide a useful reference point; however the question of how to fill out the subsequent notes used in contemporary practice is difficult to answer. Past theoreticians have split the length of an *'ūd* string into seventeen equal parts to generate the notes used; others have embraced elements of Greek theory to generate the *maqāmāt* from the genres; others accept the twenty-four-note division, used throughout many music institutions today, as the basis for the *maqāmāt*. Here I am conscious of Mishāqā's *tanbūr* experiment, which demonstrated (at least at that time) that the twenty-four-note octave division did not adequately reflect the complexities and nuances of the *maqāmāt*. This has been confirmed in my own learning of the Egyptian *maqāmāt*. In my first attempt at wrestling with the division of the octave and the articulation of the notes, I tried to base my model on the twenty-four-note division of the octave. However, difficulties arose when it became clear that this system needed to represent the difference between the first three notes of the Arabic *ajnā 'Ajam* (where the third note is slightly lower than that of a western major third), as well as the third note of the *ajnā Jihārkāh* which is only slightly lower than *'Ajam*, yet not so low as to equate to the third note in *ajnā Rāst*. Representing the difference between the *ajnās 'Ajam* and *Jihārkāh* provoked a move away from using the division of the octave into twenty-four equal parts. Moreover, I am aware that my teacher's particular expression and understanding of the *maqāmāt* does not represent the totality of

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| A *bamm* | Ao | A# | A#o | B | Bo | C | Co | C# C#o |
| D *mathlath* | Do | D# | D#o | E | Eo | F | Fo | F# F#o |
| G *mathnā* | Go | G# | G#o | A | Ao | A# | A#o | B Bo |
| C *zīr* | Co | C# | C#o | D | Do | D# | D#o | E Eo |
| F *khāmis* | Fo | F# | F#o | G | Go | G# | G#o A | |

**Figure 3.** Twenty-four fixed notes shown over two octaves.

contemporary *maqām* practice. Thus my own practice and awareness of the differences in regional articulations of the *maqāmāt* have contributed to adopting a more complex system than the equal division of the octave into twenty-four notes.

Instead of taking the twenty-four-note octave as representative of the totality of contemporary practice therefore, I suggest using these notes as the basis of a model that incorporates both fixed and mobile notes in order more accurately to describe the realities of these practices. Thus in addition to the notes that can be derived using just the tuning of the *'ūd* into perfect fourths, I shall use the notes of the twenty-four note division of the octave as further fixed notes in this system. In Figure 3, I have represented these fixed notes, beginning from the A *bamm* string ascending two octaves to the A on the *khāmis* string. In this diagram, these notes are approximately represented on the strings of the *'ūd* as follows (shown here to two octaves), the symbol "o" has been used to distinguish the quartertones, and the enharmonic names for notes have been left out for the sake of simplicity.[13]

Using the equally divided twenty-four-note octave as fixed notes provides helpful and essential reference points for the moveable notes, which are used to articulate in more detail, the nuances of the *maqāmāt*. In order to articulate the moveable notes, I shall borrow the concept of the *fadlat,* which has been used to signify the smallest interval by theorists such as Al-Kindī and Al-Fārābi (though the exact measurement of the *fadlat* differs between theorists [Maalouf 2011, 107, 128]). In this system, I shall use the *fadlat* to describe the mobile notes in the model, which indicates a relative pitch adjustment either raising or flattening a note, between the space of two fixed notes. Figure 4 then is a theoretical construction of a forty-eight-note octave in which I've chosen A (equivalent to the lowest note of the *bamm* string on the *'ūd* used by theorist Al-Kindī) as the tonic (*qarār*) to demonstrate the division of the octave.

Having established the division of the octave as a combination of twenty-four fixed notes and twenty-four moveable notes, I shall now move from the specific demonstration of the twenty-four fixed notes on the 5-string *'ūd* to a more general representation of these notes,

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[13] Naturally, when translated into a Western context, the enharmonic names for the notes are still applicable.
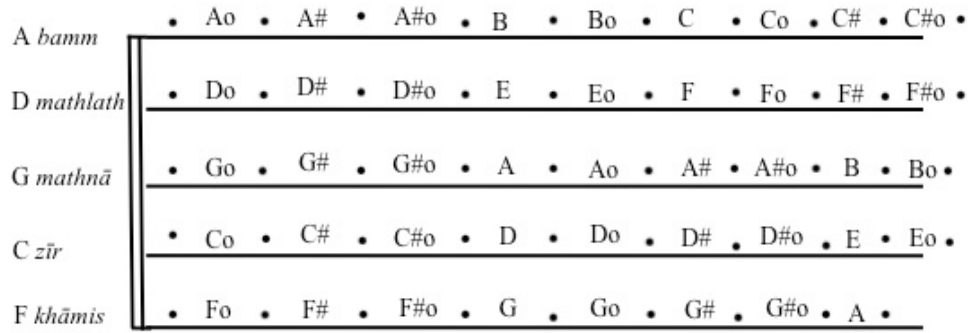
**Figure 4.** Fixed notes and moveable notes resulting in a forty-eight-note octave.

abstracted from the specific pitch reference articulated previously in Figure 3. In Figure 5 I have used the numbers 1 through 24 encircled to represent the various fixed notes that will be used to construct the scale degrees. Notes located an octave above or below are represented with a " – " symbol situated above and below a fixed note respectively. The symbols do not refer to the pitches A or B as represented in Figure 3, but rather to their position in the octave, such as the tonic equating to the 1 encircled, with the following symbols representing the equal division of the octave into twenty-four notes. As the numbers increase, so do the pitches until the octave at number 24 encircled. The numbers encircled are similar to Western solfege or *sargam* in Hindustani and Carnatic music, where the exact pitches represented by the numbers vary depending on which pitch is chosen as the tonic or *shadaja* respectively.

The mobile notes are accordingly demonstrated by one dot above or below a note, where a note above a circle represents a note sharpened by one *fadlat*, and a dot below represents a note flattened by one *fadlat*. Figure 6 represents a sample list of these *ajnās*.

Using this system, it is possible to see subtle differences in pitch articulation, such as the slight distinction between *ajnās Jihārkāh* and *'Ajam* respectively. While it would not be possible to present an exhaustive list of the potential *maqāmāt*, the *maqāmāt* in Figure 7 are presented as examples of how particular modes may be represented using this system. Additionally, I have highlighted a limited number of internal *ajnās* within each *maqām* that can be used as points of modulation during a *taqsīm* or in composition. While I have highlighted certain *ajnās* within each *maqām*, this is neither a complete list of the potential points for modulation, but rather a selection of these *ajnās* are represented here for descriptive purposes.
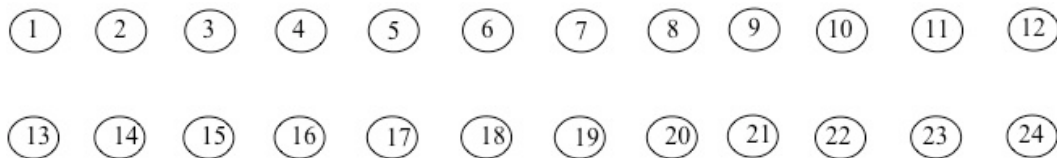


**Figure 5.** Symbols representing the twenty-four fixed notes of the octave.

Trichords

(1) (5) (9) *'Ajam*

(2) (5) (9) *Sīkāh*

(2) (7) (9) *Musta'ār*

(1) (5) (8) *Jihārkāh*

Pentachords

(1) (5) (7) (13) (15) *Nawā Athar*

(1) (3) (7) (13) (15) *Athar Kurd*

Tetrachords

(1) (4) (7) (11) *Bayyātī*

(1) (3) (9) (11) *Hijāz (1)*

(1) (3) (9) (11) *Hijāz (2)*

(1) (3) (7) (11) *Kurd*

(1) (5) (7) (11) *Nahawand*

(1) (5) (8) (11) *Rāst*

(1) (4) (7) (9) *Sebā*

(1) (5) (7) (11) *Būsālīk/'Ushāq*

(1) (3) (7) (9) *Zamzama*

**Figure 6.** *Ajnās* arranged according to trichords, tetrachords, and pentachords.
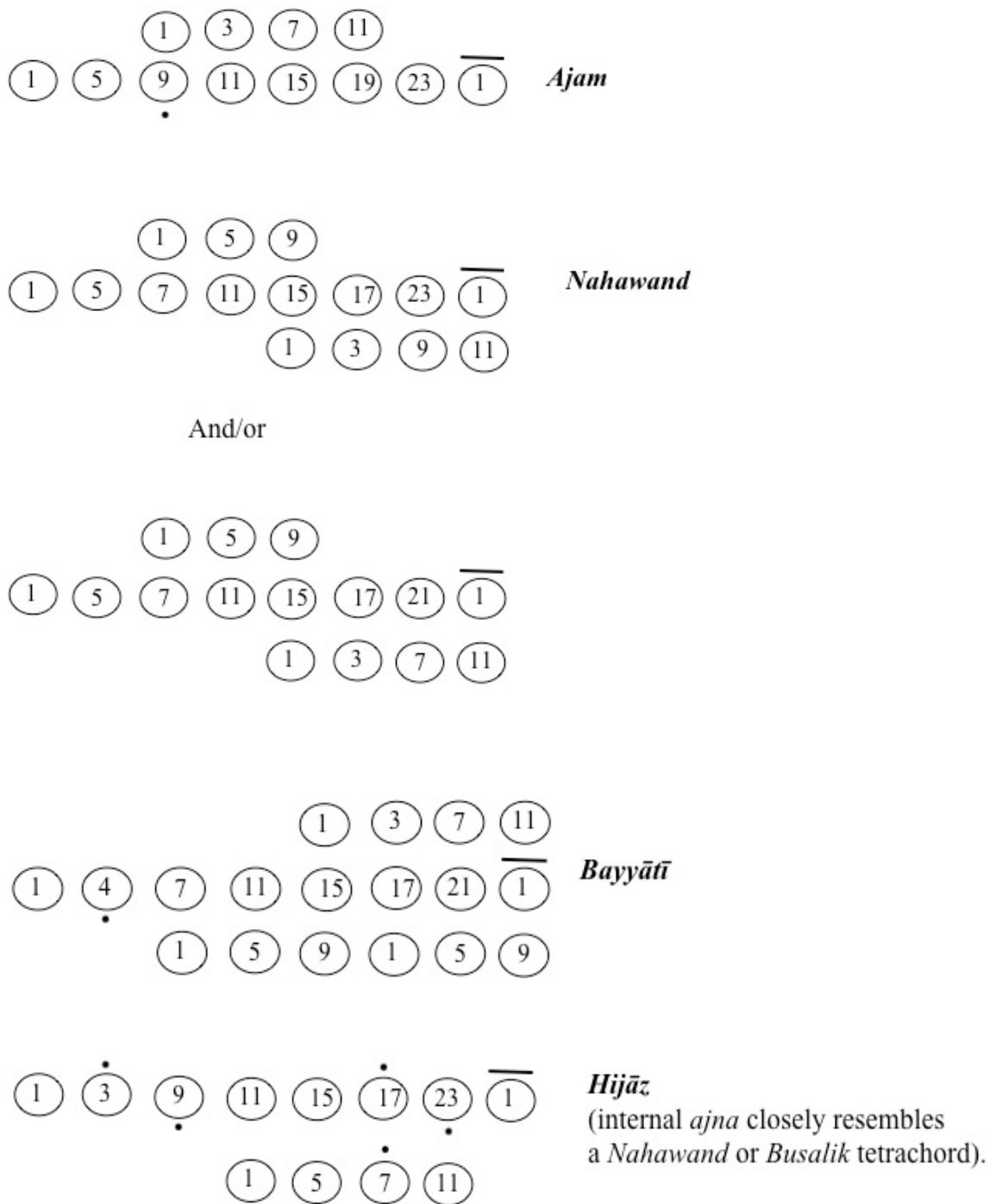
**Figure 7.** Representation of a selection of *maqāmāt*.

Using this model, it is possible to represent some of the nuances of the *maqāmāt*. For example it is possible with the *maqām 'Ajam*, which closely resembles the Western major scale, to demonstrate that the third degree of the scale is slightly flatter than in Western equal temperament. Moreover, the benefit of this model is that performers can demonstrate these nuances according to their own practice. While some musicians would equate the *Rāst* neutral third with the second degree of *Bayyātī*, other musicians perform the *Bayyātī* second degree slightly flatter than the *Rāst* third. Similarly, within the two examples of the *ajnā Hijāz*, it is possible through the use of the *fadlat* to distinguish between *ajnā Hijāz* that equates to Western temperament and an expression of *ajnā Hijāz* that includes a slightly raised and slightly flattened sixth and seventh scale degrees respectively. Additionally, the internal *ajnās* can be demonstrated in order to signal some of the conventional and popular points of modulation. Thus *'Ajam* has a *Kurd ajnā* from the third scale degree; and one can observe how the *maqāmāt Nahawand* and/or *Būsālīk* are logical points of modulation from the fourth degree of the *maqām Hijāz*.

The flexibility of this model can be demonstrated with respect to the *maqāmāt* used in neighboring musical disciplines. Two examples of the *maqāmāt* used in the Tunisian *Nūba*, the seventh *nūba Nawa* and the tenth *nūba Ramal*, could be represented as in Figure 8. From Figure 8 it is possible to see the internal *ajnās* that comprise the *nuba Ramal*. The first four notes comprise of a *Hijāz* tetrachord, while a *Rāst* tetrachord is located from the fourth scale degree in the third line (11, 15, 18, 21), and a *Hijāz* tetrachord is located on the seventh scale degree in the first line (1, 3, 9, 11).
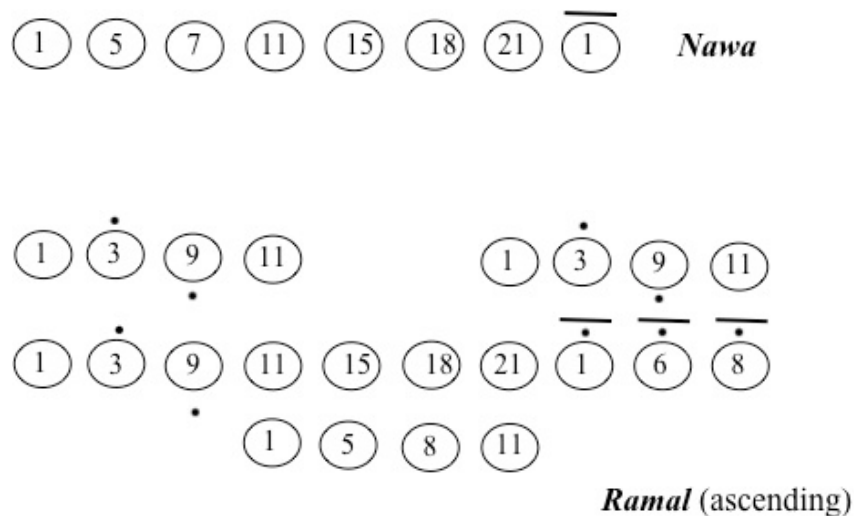


**Figure 8.** A representation of *nūba Nawa* and *Ramal* adapted from Davis (2004, 13, 14).

As a result of the flexibility of the mobile notes, this system could also be used where the same scale has different pitch articulations in different cultural contexts. For example, using Western notation, Signell (2001, 49) has compared the pitch differences between the Turkish articulation of the *makam Nihavent* and the equivalent Western minor scale, as shown in Example 5.

As the notes found in the Western minor scale have equivalents in the fixed notes of the descriptive system presented in this article, the use of mobile notes can help to indicate the subtle lowering or raising of a pitch between the twenty-four fixed notes. Figure 9 represents the notes of the Turkish *maqām* in this way.

In view of Figure 9, it is possible to see how this model may be useful for descriptive purposes in representing the diverse *maqāmāt* used in various regional styles, and also in comparative analyses with Western scale theory. The benefits of this model are its abilities to be both specific and flexible with regards to the articulation of pitch references, and to demonstrate the internal *ajnās* within a *maqām*.
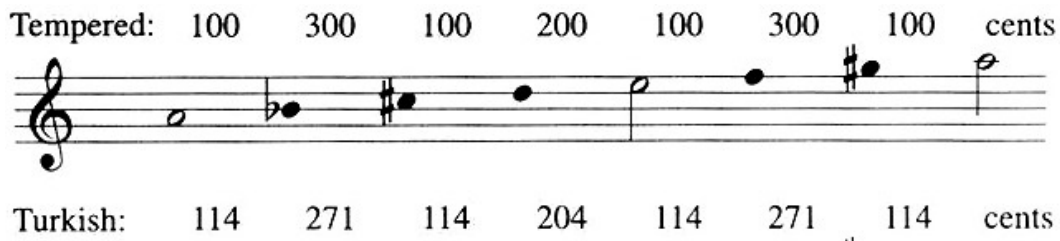


**Example 5.** The Turkish scale *Nihavent* demonstrating Western tempered intervals versus Turkish intervals, reproduced from Signell (2001, 49).
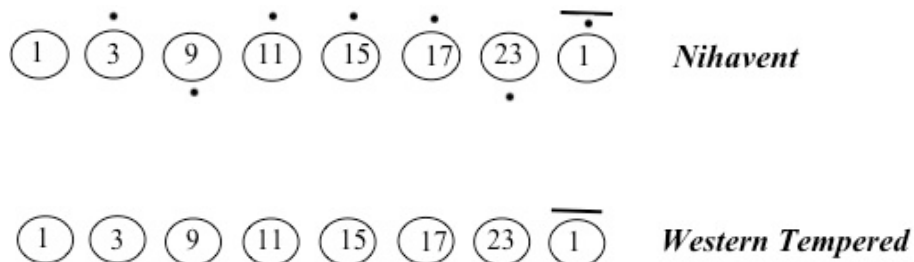


**Figure 9.** Comparison of Turkish and Western minor scale.

## CONCLUSION

In scholarship on *maqām* theory there continue to be discrepancies between the theories or models used to represent the organization of sound, and the diversity of actual music practices. Where many theoretical models approach this subject in a prescriptive way and are difficult to translate into practice, in this paper I have suggested a different approach to the gap between theory and practice, which has attempted to address some of the limitations of the equal division of the octave into twenty-four-notes and the use of Western notation. Building on the theories of Al-Fārābi and Al-Kindī in particular, I have constructed a theoretical model using a combination of fixed and mobile notes in order to form a system that is both flexible and descriptive. I would like to reiterate that the model of modal representation that I have suggested here is not intended to replace existing notation systems which represent temporal aspects as well as pitch relationships. Arguably, the benefits of this system lie in its ability to visually represent the interrelationships within the modes/*maqāmāt* in a mosaic-like pattern, which reflects the points of modulation from which a *taqsīm* or composition unfolds (Shiloah 1981, 33).

In assessing the failures of the 1932 Cairo Conference, Thomas (2007, 5) observes that these failures came about due to the scholars' inability to provide totalizing, theoretical principles, able to account for all that occurs in the practical realm. This model has the advantage of being able to accommodate microtonal complexity and regional difference, and differences between schools, traditions and teachers, combining fixed pitch reference points with non-fixed, "mobile" pitch symbols, so as to allow for intricacy in describing the articulation of notes. The use of the dots to indicate approximations of how these notes are to be articulated is particularly helpful when differentiating between *ajnās* such as ʿ*Ajam* and *Jihārkāh*, where practitioners and their audiences are particularly sensitive to their differences in pitch. It is my hope then that the representational system I propose will be able adequately (though not totally) to describe modal scales for the benefit of acquisition and retention, and to lessen the tensions between theory and practice.

By demonstrating the usefulness of this system in the representation of neighboring musical systems that use *maqām* theory, it is my hope that this model will prove useful for musicians in teaching, performance and analytical contexts. Despite the limitations of representational models in accounting for the totality of the practical realm, it is my hope that this guide to modal representation will be a useful descriptive tool to aid in the learning process, a tool that I believe provides greater clarity than previous models, and will contribute to further discussion in this area.

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