

## Some analytical insights to Arabic *maqamat*

I regard the work of art as a progressive act which erupts from its backgrounds and transcends them. In this respect, each work of art has its beginning not in itself but in a history of echoes and influential filtered entourages that affected its creation. The work of art has neither its end in itself since it is formed of various mirrors of reflections upon its beginning and its development, and has in itself rooms of resonance which shed light upon new paths for other creations to come.

Arabic music establishes a similar case. It has its roots in the past, yet has *within itself* -I modestly argue- the seeds for a future growth. It is not my intention, however, to discuss the sources where Arabic music comes from, but rather to reflect upon Arabic music's potential of growth using an analytical approach.

A) A large number of the *maqamat* establish a firm relationship to a symmetrical **retrograde-inversion** (RI) structure in two different ways:

- 1- Some *maqamat* are based on an *inner* RI structure; i.e. a RI which happens within the *maqam* itself. (Example 1)
- 2- Some other *maqamat* are based on an *outer* RI relationship; i.e. their RI creates other known *maqamat*. However, the resulting "new" *maqamat* differ from the "older" ones in their mood and musical behavior. (Example 2)

Though many other *maqamat* do not obey the two types of RI structures just mentioned, it is worthwhile to apply an outer RI to these *maqamat* and to see whether some of the resulting *maqamat* would still match the aesthetical spirit of Arabic music. (Example 3) Should it be the case, it might be interesting to question the following points:

- 1- Whether these further *maqamat*-possibilities (or perhaps further trichordal, tetrachordal, pentachord symmetrical possibilities which would result by the RI modus-operandi) have already existed at some point in the history. If yes, it would be perhaps enriching to investigate the historical and/or aesthetical reasons for which these further *maqamat*-possibilities were not transmitted as part of Arabic heritage.
- 2- Whether the RI structure (and consequentially the resulting hidden symmetrical relationships between the *maqamat*) was something which the ancestors thought of directly or indirectly, especially when one observes the equivalent richness/obsession of the medieval Arabic architecture and calligraphy with symmetrical shapes, complexity, poly-dimensional and kaleidoscopic features.
- 3- Whether these further *maqamat*-possibilities offer for Arabic music theory a new hidden richness which might not have evolved throughout the centuries, yet which might contribute effectively to a broader theory and practice of Arabic music in the present and in the future without eliminating neither destroying the already-known *maqamat* nor alienating the aesthetical spirit of Arabic music.

**B)** Further research into symmetry leads to more elaborated visions of the internal structure of the *maqmat*. One can see that Arabic internal pitch structures are highly sophisticated where each pitch has a number of **shadows** ranging from one up to five other pitches in some cases. It is interesting to observe the following ironic paradox: When a *maqam* is symmetrical (RI within itself), it has less internal symmetries /shadows than a *maqam* which is asymmetrical! (Example 4)

**C)** The mapping and analytical reading of *maqam Nawa Athar Kurd* reveal a **Fibonacci series**<sup>1</sup>. (Example 5)

These are only a few examples of many hidden structures related to Arabic *maqamat*. I do not claim that these analytical insights are the only way for exploring the hidden treasures of Arabic music. I do not claim either that these insights are the only possible way of analyzing Arabic musical structures. I only believe that such insights might open a horizon for exploring the potential Arabic tradition may offer.

Arabic music is not doomed to keep looking forever at its past; I believe it has the potency of progression without violating its aesthetical spirit. In other words, Arabic music is capable to discover new means which still reflect a certain authentic prolongation of its tradition. I am suggesting here a radical postmodernist approach where the past is deconstructed through the use of analysis<sup>2</sup>.

Saed Haddad  
2004, revised 2014

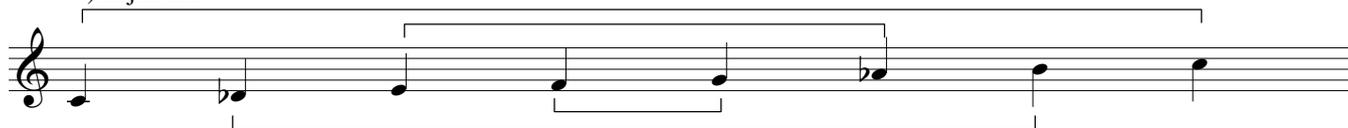
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<sup>1</sup> Wolfgang Rihm used an extended version of this scale as one of the basic elements in his Third Symphony dating from the early seventies (I do not know whether he was aware of the Fibonacci structure of this scale.

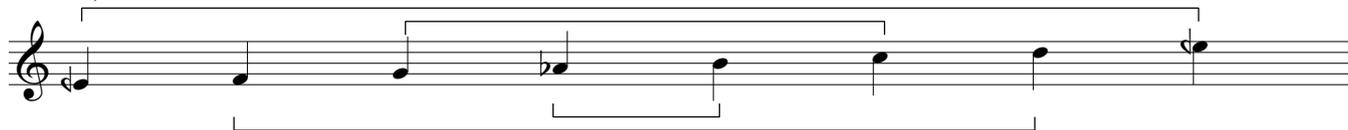
<sup>2</sup> The terms, conservative and radical postmodernism, were presented through a study done by Jonathan Kramer.

Ex. 1

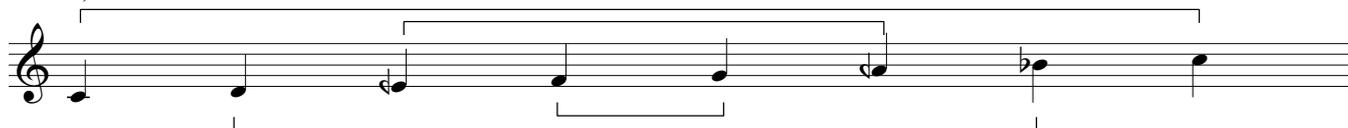
a) Hijaz-kar



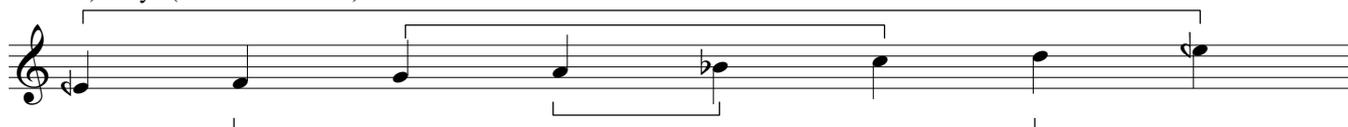
b) Huzam



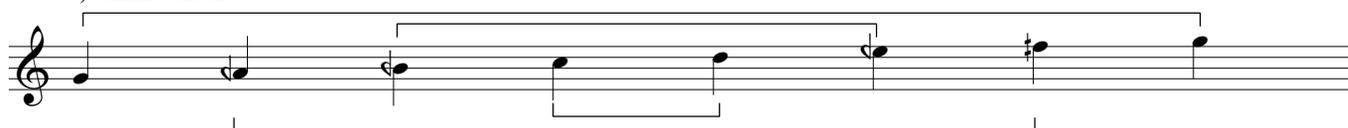
c) Nairuz



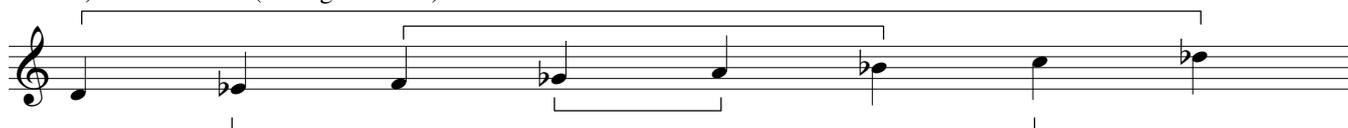
d) Maya (Sikah-nahawand)



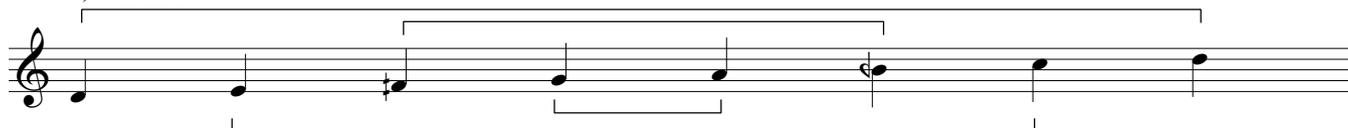
e) Sikah-baladi



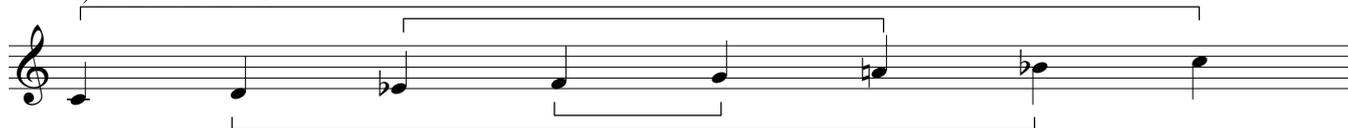
d) Saba-zamzam (ending flattened)



e) Nishaburk

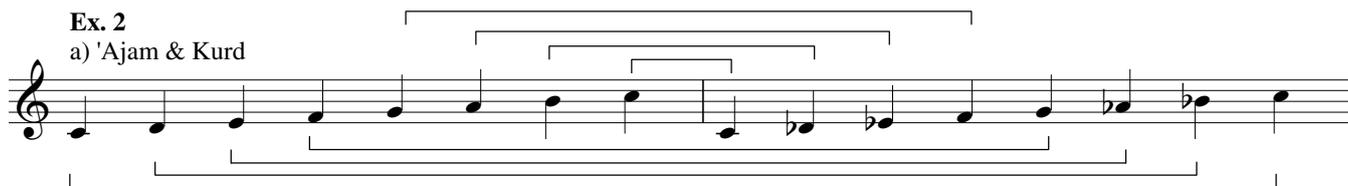


f) Nahawand-kabir

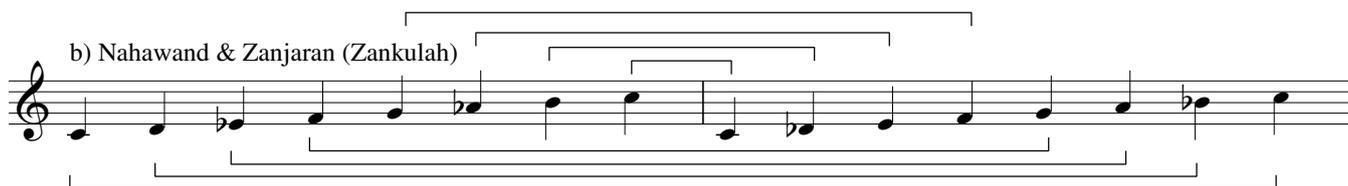


## Ex. 2

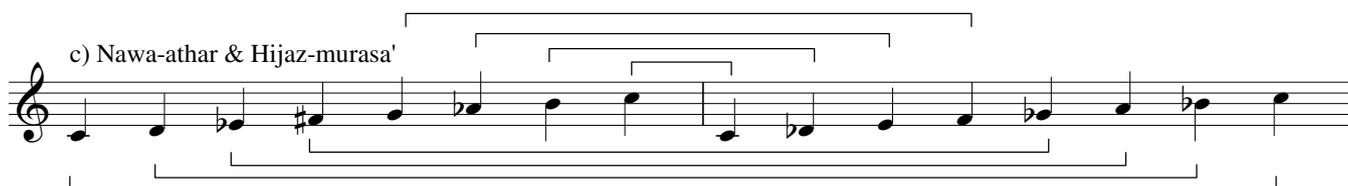
a) 'Ajam &amp; Kurd



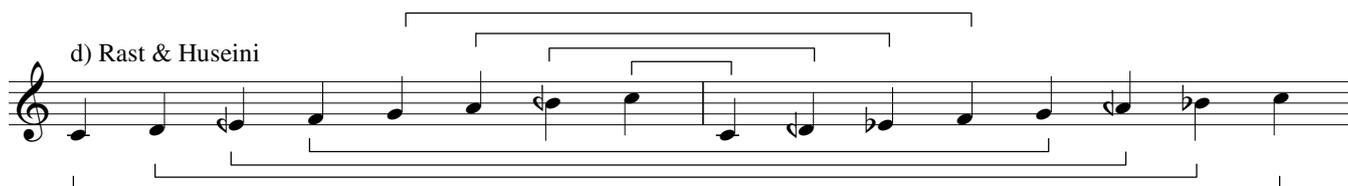
b) Nahawand &amp; Zanjaran (Zankulah)



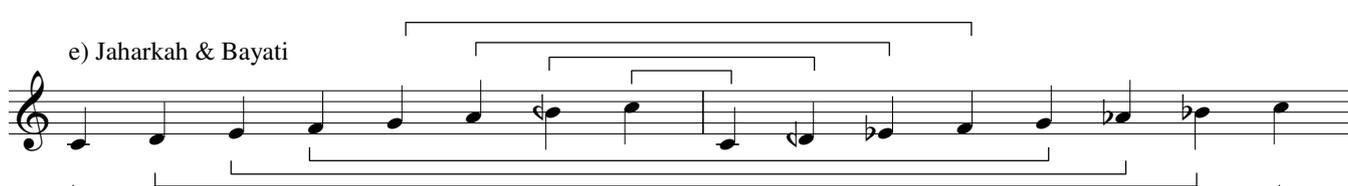
c) Nawa-athar &amp; Hijaz-murasa'



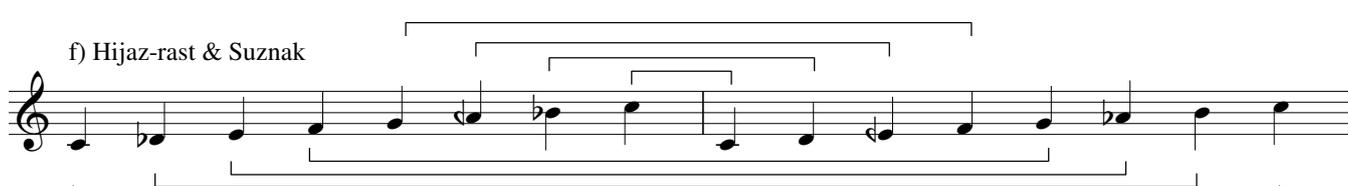
d) Rast &amp; Huseini



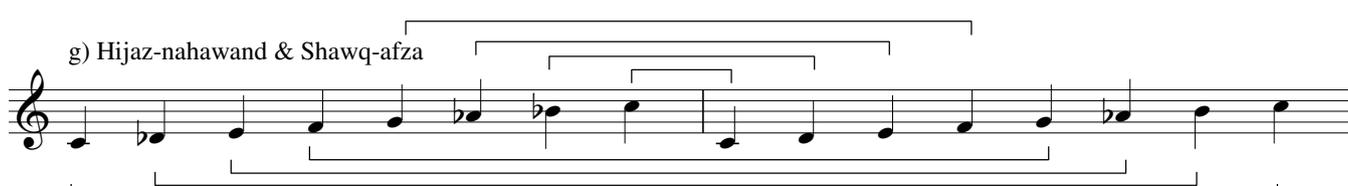
e) Jaharkah &amp; Bayati



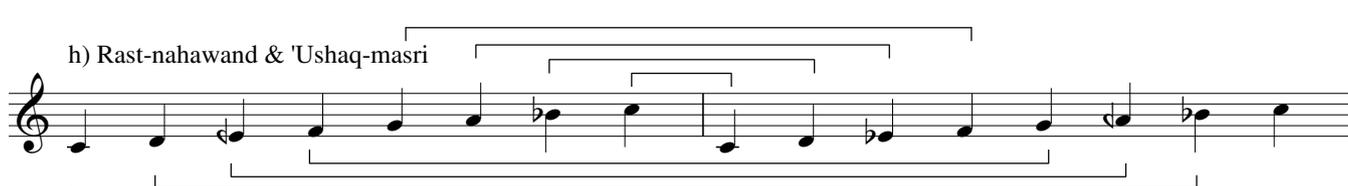
f) Hijaz-rast &amp; Suznak



g) Hijaz-nahawand &amp; Shawq-afza



h) Rast-nahawand &amp; 'Ushaq-masri



i) Farahfaza & Suzidil-'ara

Musical notation for Farahfaza & Suzidil-'ara. The staff shows a sequence of notes: C4, D4, E4, F4, G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6. Brackets indicate intervals: a 2nd between C4-D4, a 2nd between D4-E4, a 2nd between E4-F4, a 2nd between F4-G4, a 2nd between G4-A4, a 2nd between A4-B4, a 2nd between B4-C5, a 2nd between C5-D5, a 2nd between D5-E5, a 2nd between E5-F5, a 2nd between F5-G5, a 2nd between G5-A5, a 2nd between A5-B5, a 2nd between B5-C6. A larger bracket spans from C4 to C6.

j) Nakriz & Nahawand-murasa' (Sunbulah)

Musical notation for Nakriz & Nahawand-murasa' (Sunbulah). The staff shows a sequence of notes: C4, D4, E4, F#4, G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6. Brackets indicate intervals: a 2nd between C4-D4, a 2nd between D4-E4, a 2nd between E4-F#4, a 2nd between F#4-G4, a 2nd between G4-A4, a 2nd between A4-B4, a 2nd between B4-C5, a 2nd between C5-D5, a 2nd between D5-E5, a 2nd between E5-F5, a 2nd between F5-G5, a 2nd between G5-A5, a 2nd between A5-B5, a 2nd between B5-C6. A larger bracket spans from C4 to C6.

k) Shawq-awr & Lami (so-called locrian)

Musical notation for Shawq-awr & Lami (so-called locrian). The staff shows a sequence of notes: C4, D4, E4, F#4, G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6. Brackets indicate intervals: a 2nd between C4-D4, a 2nd between D4-E4, a 2nd between E4-F#4, a 2nd between F#4-G4, a 2nd between G4-A4, a 2nd between A4-B4, a 2nd between B4-C5, a 2nd between C5-D5, a 2nd between D5-E5, a 2nd between E5-F5, a 2nd between F5-G5, a 2nd between G5-A5, a 2nd between A5-B5, a 2nd between B5-C6. A larger bracket spans from C4 to C6.

l) 'Iraq & Sikah

Musical notation for 'Iraq & Sikah. The staff shows a sequence of notes: C4, D4, E4, F4, G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6. Brackets indicate intervals: a 2nd between C4-D4, a 2nd between D4-E4, a 2nd between E4-F4, a 2nd between F4-G4, a 2nd between G4-A4, a 2nd between A4-B4, a 2nd between B4-C5, a 2nd between C5-D5, a 2nd between D5-E5, a 2nd between E5-F5, a 2nd between F5-G5, a 2nd between G5-A5, a 2nd between A5-B5, a 2nd between B5-C6. A larger bracket spans from C4 to C6.

Ex. 3

a) Husayni-'ashiran & ?

Musical notation for Husayni-'ashiran & ?. The staff shows a sequence of notes: C4, D4, E4, F4, G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6. Brackets indicate intervals: a 2nd between C4-D4, a 2nd between D4-E4, a 2nd between E4-F4, a 2nd between F4-G4, a 2nd between G4-A4, a 2nd between A4-B4, a 2nd between B4-C5, a 2nd between C5-D5, a 2nd between D5-E5, a 2nd between E5-F5, a 2nd between F5-G5, a 2nd between G5-A5, a 2nd between A5-B5, a 2nd between B5-C6. A larger bracket spans from C4 to C6.

b) Hisar & ?

Musical notation for Hisar & ?. The staff shows a sequence of notes: C4, D4, E4, F#4, G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6. Brackets indicate intervals: a 2nd between C4-D4, a 2nd between D4-E4, a 2nd between E4-F#4, a 2nd between F#4-G4, a 2nd between G4-A4, a 2nd between A4-B4, a 2nd between B4-C5, a 2nd between C5-D5, a 2nd between D5-E5, a 2nd between E5-F5, a 2nd between F5-G5, a 2nd between G5-A5, a 2nd between A5-B5, a 2nd between B5-C6. A larger bracket spans from C4 to C6.

c) Shawq-tarab & ?

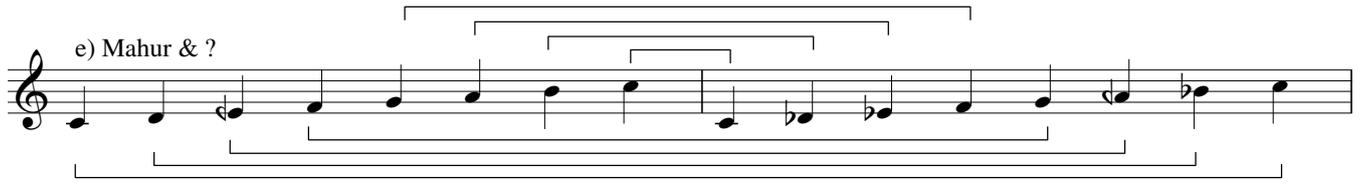
Musical notation for Shawq-tarab & ?. The staff shows a sequence of notes: C4, D4, E4, F4, G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6. Brackets indicate intervals: a 2nd between C4-D4, a 2nd between D4-E4, a 2nd between E4-F4, a 2nd between F4-G4, a 2nd between G4-A4, a 2nd between A4-B4, a 2nd between B4-C5, a 2nd between C5-D5, a 2nd between D5-E5, a 2nd between E5-F5, a 2nd between F5-G5, a 2nd between G5-A5, a 2nd between A5-B5, a 2nd between B5-C6. A larger bracket spans from C4 to C6.

\* In Arabic music theory, we have not yet encountered a maqam which begins with an augmented 2nd

d) Tarznawayn & ?

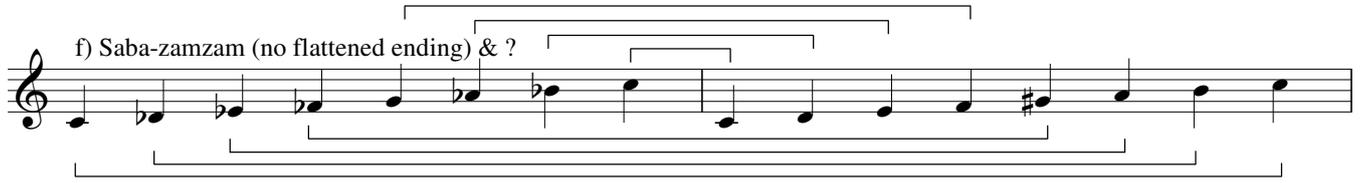
Musical notation for Tarznawayn & ?. The staff shows a sequence of notes: C4, D4, E4, F4, G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6. Brackets indicate intervals: a 2nd between C4-D4, a 2nd between D4-E4, a 2nd between E4-F4, a 2nd between F4-G4, a 2nd between G4-A4, a 2nd between A4-B4, a 2nd between B4-C5, a 2nd between C5-D5, a 2nd between D5-E5, a 2nd between E5-F5, a 2nd between F5-G5, a 2nd between G5-A5, a 2nd between A5-B5, a 2nd between B5-C6. A larger bracket spans from C4 to C6.

e) Mahur & ?



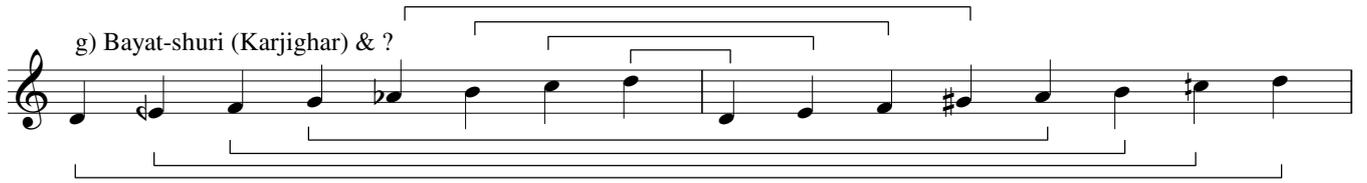
Musical notation for Mahur & ? in treble clef. The melody consists of quarter and eighth notes. Brackets above the staff indicate phrasing: a large bracket spans the first six notes, and smaller brackets group subsequent notes. Brackets below the staff indicate a sequence of intervals: a large bracket for the first six notes, and smaller brackets for the remaining notes.

f) Saba-zamzam (no flattened ending) & ?



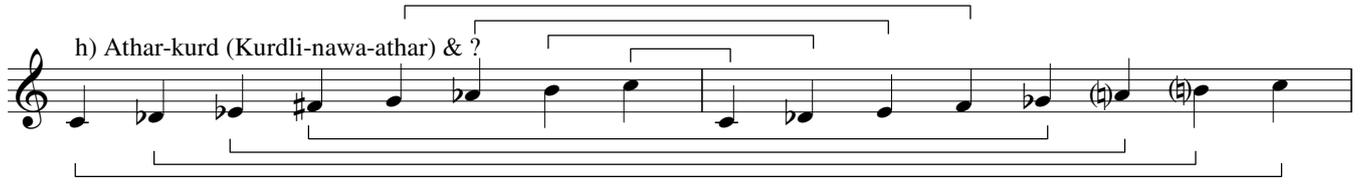
Musical notation for Saba-zamzam (no flattened ending) & ? in treble clef. The melody consists of quarter and eighth notes. Brackets above the staff indicate phrasing: a large bracket spans the first six notes, and smaller brackets group subsequent notes. Brackets below the staff indicate a sequence of intervals: a large bracket for the first six notes, and smaller brackets for the remaining notes.

g) Bayat-shuri (Karjighar) & ?



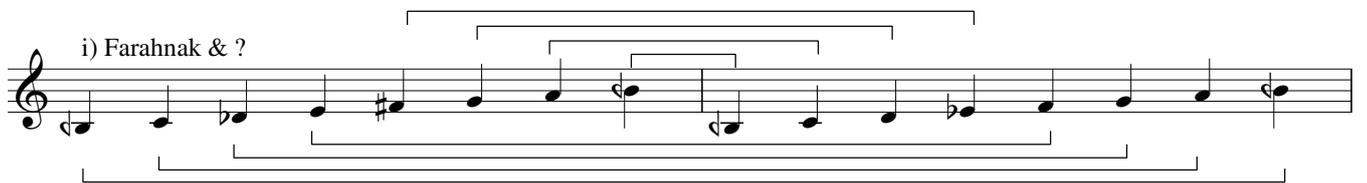
Musical notation for Bayat-shuri (Karjighar) & ? in treble clef. The melody consists of quarter and eighth notes. Brackets above the staff indicate phrasing: a large bracket spans the first six notes, and smaller brackets group subsequent notes. Brackets below the staff indicate a sequence of intervals: a large bracket for the first six notes, and smaller brackets for the remaining notes.

h) Athar-kurd (Kurdli-nawa-athar) & ?



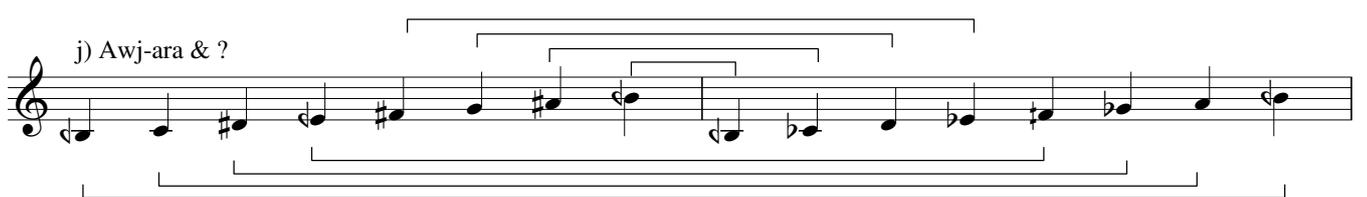
Musical notation for Athar-kurd (Kurdli-nawa-athar) & ? in treble clef. The melody consists of quarter and eighth notes. Brackets above the staff indicate phrasing: a large bracket spans the first six notes, and smaller brackets group subsequent notes. Brackets below the staff indicate a sequence of intervals: a large bracket for the first six notes, and smaller brackets for the remaining notes. The final two notes are circled.

i) Farahnak & ?



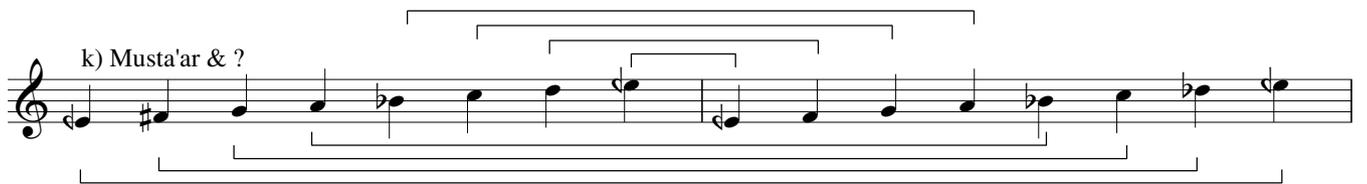
Musical notation for Farahnak & ? in treble clef. The melody consists of quarter and eighth notes. Brackets above the staff indicate phrasing: a large bracket spans the first six notes, and smaller brackets group subsequent notes. Brackets below the staff indicate a sequence of intervals: a large bracket for the first six notes, and smaller brackets for the remaining notes.

j) Awj-ara & ?



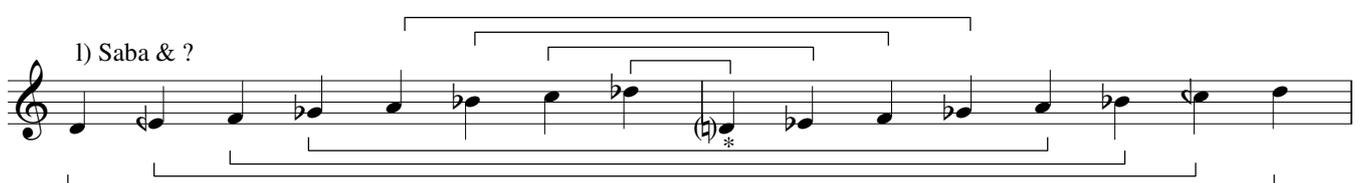
Musical notation for Awj-ara & ? in treble clef. The melody consists of quarter and eighth notes. Brackets above the staff indicate phrasing: a large bracket spans the first six notes, and smaller brackets group subsequent notes. Brackets below the staff indicate a sequence of intervals: a large bracket for the first six notes, and smaller brackets for the remaining notes.

k) Musta'ar & ?



Musical notation for Musta'ar & ? in treble clef. The melody consists of quarter and eighth notes. Brackets above the staff indicate phrasing: a large bracket spans the first six notes, and smaller brackets group subsequent notes. Brackets below the staff indicate a sequence of intervals: a large bracket for the first six notes, and smaller brackets for the remaining notes.

l) Saba & ?



Musical notation for Saba & ? in treble clef. The melody consists of quarter and eighth notes. Brackets above the staff indicate phrasing: a large bracket spans the first six notes, and smaller brackets group subsequent notes. Brackets below the staff indicate a sequence of intervals: a large bracket for the first six notes, and smaller brackets for the remaining notes. The final note is circled and marked with an asterisk.

\* Other transpositios have been adapted in order to facilitate the notation

m) Bastanikar & ?

A musical staff in treble clef showing a sequence of notes: C4, D4, E4, F4, G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4. Brackets above and below the staff group these notes into various intervals. A star is placed under the G4 note.

**Ex. 4**

a) Internal symmetries (shadows) within the asymmetrical *maqam 'Ajam*

A musical staff in treble clef showing the notes of *maqam 'Ajam*: C4, D4, E4, F4, G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4. Brackets above and below the staff indicate internal symmetries and shadows within the scale.

*maqam 'Ajam*

Four shadows of pitch G      Four shadows of pitch A      Three shadows of pitch B      Three shadows of pitch F      etc.

A musical staff in treble clef showing four groups of notes, each starting with a whole note followed by four eighth notes. The groups are: 1) G4, A4, B4, C5; 2) A4, B4, C5, D5; 3) B4, C5, D5, E5; 4) C5, D5, E5, F5.

b) Internal symmetries (shadows) within the symmetrical *maqam Huzam*

A musical staff in treble clef showing the notes of *maqam Huzam*: C4, D4, E4, F4, G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4. Brackets above and below the staff indicate internal symmetries and shadows within the scale.

*maqam Huzam*

**Ex. 5**

a) Fibonacci series (applied to 8 pitches/ mapping of *maqam Athar-kurd*)

A musical staff in treble clef showing the notes of *maqam Athar-kurd*: C4, D4, E4, F4, G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4. Brackets below the staff indicate intervals of 1, 1, 2, 3, 5, 8, and 13 semi-tones.

*maqam Athar-kurd*

\*The unit of measurement is semi-tone