

Pitched-sound Grammars in the Sharh-iadvar (Commentary to “Circles”) of Abd al-Kadir al-Maragi (1353-1435)

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Abstract—This article examines Abd al-Kadir ibn Gaybi al-Hafez al-Maragi’s (1353-1435) Sharh-iAdwar (Commentary to “Circles”) treatise on music which reflects on the six hundred years of scientific experiences in music theory since al-Farabi up to the beginning of 15th century. Analyse discovers two description languages of the same pitched-sound system. Both of them depend on the hierarchical and non-hierarchical organization of the structural units, connected with the analytic and synthetic research methods and the genus-species and non-genus-species relations of the basic categories of music theory.

Keywords—theory of music; pitched-sound system; logic; structural unit; maqam

I. INTRODUCTION

The article is based on the critical editions of the Arabic and Persian treatises on music including al-Fāriḍī al-Ġaybī al-Hāfez al-M rāġī’s (1353 – 1435) treatises [6], [7], [8] in his Š r ḥ-i wār (Commentary to “Circles”) which was fragmentarily translated in Russian [14], [15], [16]. I will give a very general outline of the basic idea, remaining in the field of theoretic thought about the structure of maqam analyzing the Š r ḥ. By studying the role of the Š r ḥ through the history of medieval maqam theory, it is possible to understand the two strategies of the organization of the pitched-sound systems in relation to scientific methods and description of the basic music categories. There is the conflict of two scientific methods in the Š r ḥ in spite of the similarities of the themes and problems in the Arabic and Persian treatises on music of the 10th – 15th centuries. And this conflict was dependence on two world pictures of the classical Arabic-Muslim culture (7th – 15th cc.).

Despite the fact that all treatises in genre risalah al-musiqā connect with the practice the art of maqam — the professional music of the oral tradition — there was not one definition of the term —“maqām” in the music theory. Therefore the article aims to draw attention to maqam behavior’s strategies analyzing the music categories’ description language, which reflects the variety of realizations of fundamental sense-generating procedures (mechanisms) of thinking like part-to-whole and

opposition-and-unity relations. If we cannot get the completely description the maqam idiom in the original medieval treatises on music there is reason to understand how the description language of the structural units of maqam was organized in connection with the philosophic systems of that historical period.

The main idea of the article is below in the thesis and five paragraphs after that. Because of above mentioned procedures’ action, there is reason to observe two world pictures in the organization of the pitched-sound systems:

- The first is the substance-dependent world picture, which is revealed in the understanding the tone as the substance, which has such accidents as location, movement, time, etc., and determines the hierarchical organization the pitched-sound grammar of musical language;
- The second is the non-substance-dependent or process-dependent world picture, which is revealed in understanding the tone as the timeless process and determines non-hierarchical pitched-sound grammar of musical language;
- Both pitched-sound grammars are discovered in the al-M rāġī’s Š r ḥ and seem to be a short history of the development of music theory during six ages of the classical Arabic-Muslim culture.

II. ABOUT THE ŠARH

Let us note that al-M rāġī’s Š r ḥ reflects on the 600 years of scientific experiences in music theory since al-Fāriḍī up to the beginning of 15th century. M r āġī consistently translates it to Persian and comments on the Arabic text of Š f ī l-Dīn’s Kitā l- wār f ī l-Mūsīq (Book of Circles in Music) and at the same time also reveals the views of the scholars on the basic musical science categories such as mūsīqī n ġ m u āir etc. Here y it is possible to contemplate the Š r ḥ as the encyclopedia of music-theoretical thought of 10th – 15th centuries. This work, not without reason overcomes the assertion that: “of the various commentaries on the Kitā l- wār y fr the most

significant is the so-called *Š r ḥ* of *M w lānā Mu r k Sh h* (777/1375)" [21].

The *Š r ḥ* contains the Introduction (*muqaddima*), two parts (*m q ā l*) or 15 chapters (*f š l*) and the fundamental Conclusion (*hātim*) [8] of ten chapters titled *F w ā i - i š r*; in fact, independent work was separately copied through the centuries as a stand-alone treatise [3]. *Al-M r ā ġ ī*'s *Š r ḥ* remembers the dramatic pages of the history of the classical Arabic-Muslim culture when the different world pictures clashed to form the contradictory unity. Perhaps a set of different opinions could give rise to see the chaotic way of presenting the information about a subject matter without its strict selection and ordering in the *Š r ḥ*. However, my investigation started with the first chapter being about the meaning of the word "music" (*mūsīqī*) and reveals that all citation instances have the aim of establishing the truth (*ḥ q ī q t*) of phenomenon to show how different in the same time irreconcilable the positions of the authorities. *Al- ā ir*'s analysis of the predecessors' definitions demonstrates how correctly appending a word or short phrase forms a new way of understanding the well-known definitions.

III. METHOD AND LOGIC

Analysis of the basic musical categories coherency in the *al-Urm w ī s itā* on the one hand and *Al-M r ā ġ ī*'s *Š r ḥ* on the other, gives grounds to discuss two research methods in touch with two types of theoretical thought. The first one is the analytic method which has been applied since Ptolemy's (100 – 175 B.C.) *Harmonica* and was well known in the Eastern peripatetic philosophy school (*ū N š r Muh m m al-Fārā ī* (.950) and others) irrespective of acceptance or critics of Pythagoreans cosmology. The second one is the synthetic method which was borrowed by *Š f ī l-Dīn* from the classical theory of Arabic grammar and applied to the description of the pitched-sound system in *Kitā*. Partially it was supported by *al-M r ā ġ ī* in the *Š r ḥ* on the "root-runch" (*āsl—f r'*) pair for classification and systematization of the difference phenomena [15].

Relative to the Eastern peripatetic philosophy school and non-formalizing logic of *Mu t z i l* in theoretical Sufism, there is reason to connect both above-mentioned methods with "the logic of substance" and "the logic of process" [2 18] forming two types of thinking and the specific description language for each of them. The first type completely reflects the genus-species relationship between the basic categories in music theory's description language; it was expressed by *al-Fārā ī* in his "Great Book of Music" (*Kitā l-mūsīqī l-k īr*) [1]. The second one reflects the non-genus-species relationships and, to my way of thinking, could be partially considered in the matter of *Fakhr al-Dīn l-Rāzī*'s (1141 – 1209/10) acoustic theory [11, 12, 13]. At the same time in *Š f ī l-Dīn*'s acoustic theory [20] and his pitched-sound grammar [19] was not completely supported by *M r ā ġ ī* in return to the direction of the analytic method [8] in the Conclusion of the *Š r ḥ*.

IV. RETURNING TO ANTIQUITY METHOD

What does "returning to antiquity method" mean relatively to the *Š r ḥ* of "Al- ā ir al-M r ā ġ ī? *Al-M r ā ġ ī* took *Š f ī l-Dīn*'s view of the music science subject inspire by his rationale for the "tone" category as well as the principle of organizing the potential (84 *wār*) and *l* (12 *š u ū* 6 *āwāz t*) sound structures. Expressing admiration and at the same time criticizing his spiritual teacher, *Sheikh al-M r ā ġ ī* is not however optimistic his method wholly nor the description language of pitched-sound grammar completely, in which there was no fundamental category such as the "greater system" (= *j m t āmm*; pers. *jam-itāmm*; "perfect system" = *j m k āmil*; pers. *j m-ikāmil*). This category was explained for the first time in *Harmonica* of Ptolemy [5] and transformed by *al-Fārā ī*'s *Kitā l-mūsīqī* in correspondence with the musical practice of *Maverannah* where he had lived for approx. 40 years. This greater system provides the hierarchical organization as the guarantor of the order and harmony in the world of sounds. It seems that the lack of a hierarchically organized pitched-sound system in *Kitā* is the result of the otherness of *Š f ī l-Dīn*'s logic not the misunderstanding of the young scientist.

Al-M r ā ġ ī decides to write the final chapter of the *Š r ḥ*—"correcting" *Š f ī l-Dīn*'s "excessively subtle music study" [8] in order to solve the theoretical questions—"by the words of predecessors".

Al-M r ā ġ ī writes:

—since we have (already) the solutions to all the problems that explain the numerous benefits and excessive subtlety of the study of music (in *Kitā*) from the *M q ā š ed al-Alḥān* (created earlier than this *Š r ḥ* but later than the *J m l-Alḥān*) using the words of our predecessors we will explain the ten benefits for knowing the [truth] (*šāḥeb-iḍāwq*) and the amorosness of the prevailing desire [to it] (*š eqān-e ġāle -iš w q*) in order to show how we can profit from it. I call this book *Z w ā i l-F w ā i* which has ten chapters" [8].¹

Therefore, there is reason to speak about the reconversion in *m q ā m* theory considering *M r ā ġ ī*'s *Š r ḥ* through the method and description language, not only this treatise. The comparison of two versions of the treatise known as the "treatise on music of *Niš pūrī*" [9 10] gives reason to conclude that:

- "treatise on music" has been written in the early 14th century by a non-author which was the verbal commentator (*muq r r r*) of *Niš pūrī*'s book;
- "treatise on music" is the compendium and represents the adaptive version of *al-Urmavi*'s theory for the musical practice of *Khorasan* and *Persian* musical terminology to describe the substance-dependent world picture and the hierarchical organization of the sound structures. However, this is a topic for a separate study.

¹ Translated from the Persian by G. B. Shamilli.

V. TWO PITHED-SOUND SYSTEMS

Abd al-Kā'ir not contently strayed with the chapter on Sequencing (tarrīf) of four tetrachords (ṭabaqāt) in the greater system (jam' tāmm)" [8], presenting one in the geometric image of hierarchical integrity of the small and large circles "Fig. 1". The largest one is the double-octave interval (u' l-zikullm rrt in) containing according to the author the greater system in which there are four quarters (u' zī l-arba') and two whole tones (u' ṭn īnī)" [8]. The greater system is divided into two halves by the —matul mi st' (l-wasafī l-muš r k) or two octaves (u' zī l-kull). Each of them contains two tetrachords (jins) and a whole tone that is organically linked to Ptolemy's σύστημα τέλειον "Fig. 2" and al-Fārā'ī's jam' tamm [1] with regard to part-and-whole and opposition-and-unity relations as the fundamental procedures of theoretical thought.

Here we can see the hierarchical paradigm in which (1), the parts are contrary and leaving a gap in-between; and (2), the whole in the case of where its augmentation or reduction remains the sum of its parts in the Aristotelian sense as is possible to see in his Metaphysics:

— whole means (1) that from which is sent none of the parts of which it is said to be naturally a whole, and (2) that which so contains the things it contains that they form a unity; and this in two senses—either as being each severally one single thing or summing up the unity between them".²

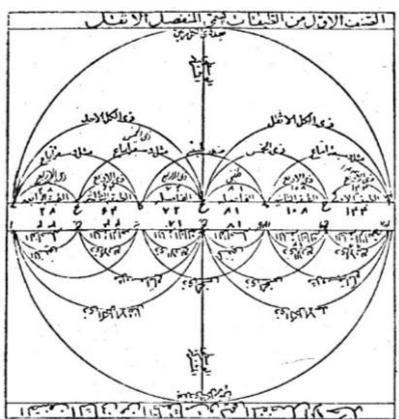


Fig. 1. Greater system in the S r h.

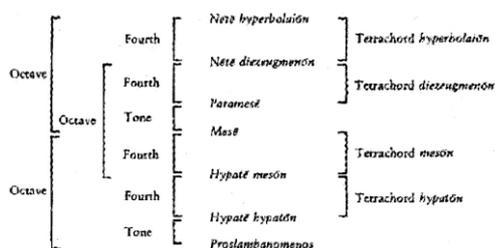


Fig. 2. Ptolemy's greater system. Translation of Andrew Barker [5].

² Metaphysics, by Aristotle. Book V. <https://ebooks.adelaide.edu.au/a/aristotle/metaphysics/book5.html>.

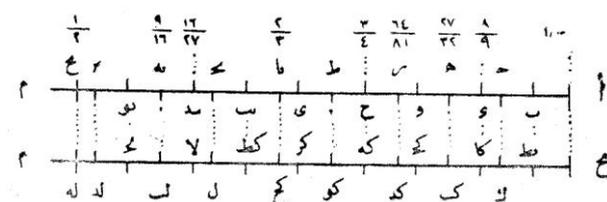


Fig. 3. Pitched-sound system of al-'Urm wī [19].

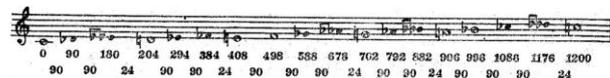


Fig. 4. Transcription of V. M. Belyaev [4].

However, in this case, the greater system includes a number of the features that al-M rāgī does not consider. First there are the fixed sounds (ἑστῶτα εὐθόγγοι = n ġ m rāti h) as the boundaries of tetrachords and non-fixed sounds (κινούμενοι εὐθόγγοι = n ġ m mut ġ y yir h) between them. Secondly it makes transition (μεταβολή = 'intiḡāl) from one mode to another by means of a common sound or two or three of them.

I see the contradiction arising not because these greater system's qualities were ignored by al-M rāgī but because he did not withdraw from Ṣ fī l-Dīn's systematic principles that even developed them, whereas the notions of order and harmony in Ṣ fī l-Dīn's theory is not associated with the hierarchical organization. On the contrary Ṣ fī l-Dīn describes each tone of the pitched-sound system as a —rotation axis" (m ā r) for melodic structure. l-'Urm wī starts the second chapter of Kitā' —The division of the frets" by the revolutionary thesis which seems primitive and, in essence, cancels out any possibilities of being able to comment on it as a specific option of greater system "Fig. 3", "Fig. 4".

He writes, —The frets (l- sāṭīn) whose signs are visible in the shak es (s wā' i) of the string instruments (al- lāt z wāt l- w tār) are the place (m qām) where the process of tones coming into existence (muxārij l-n ġ m) from the parts of the string (ajzah al-watar) comes true. 17 tones, each of which is the axis of rotation for the melodies (m ā r l-alhān) relocate on one string" [19 8].³

	I	II	III	IV	V	VI	VII	VIII
'Ussāq	C	D	E F	G	A B [♯]	C		
Navā	C	D E [♯]	F	G A [♯]	B [♯]	C		
Busalik	C D [♯]	E [♯]	F G [♯]	A [♯]	B [♯]	C		
Rās	C	D E [♯]	F	G	A [♯] B [♯]	C		
Zangulah	C	D	E [♯] F	G [♯]	A [♯]	B [♯]	C	
Huseinī	C	D [♯] E [♯]	F	G [♯] A [♯]	B [♯]	C		
Zirafkand	C	D [♯] E [♯]	F	G [♯] A [♯] A [♯]	B [♯]	C		
Rahāvī	C	D [♯]	E [♯] F	G [♯] A [♯]	B [♯]	C		
Isfahān	C	D	E [♯] F	G [♯]	A [♯] B [♯]	B C		
Hijazī	C	D [♯] E [♯]	F	G [♯] A [♯]	B [♯]	C		
'Arāq	C	D [♯] E [♯] F	G [♯] A [♯]	B [♯]	C			
Buzurg	C	D [♯]	E [♯] F	G [♯] G	A	B [♯]	C	

Fig. 5. 12 šu ū : the «root—runch» ('šl—f r) relation (table by Shamilli).

³ Translated from the Arabic and Persian by G. Shamilli.

Studying the question of why every tone of the 17-tone scale is “the rotation axis” (mā) or the pillar tone of the melodies reveals that Ṣifī l-Dīn describes the paradigmatic system or a mathematical set of one-level system elements which are not hierarchical. The main point is that the tone as the unit of pitch-sound grammar is described not as a substance, occupying an equal place, but a process, or logical relationship (nisbat) of two sounds (‘swāt) in the tone cutly equal to the interval. Thereby all sound structures such as interval, tetrachord, pentachord and octave scale are described as transformations; only one unit of pitch-sound, grammar-tone in such states as the “compositing” (tā‘lif) “connection” (j m) and “conjunction” (izāf) where the tone is the part of “perfect necklace” (ṣ) equal to the whole ut ṣ (= m qām) is the fullness of all these states. Thus, the coherence of the basic categories in Ṣifī l-Dīn’s description language is fundamentally different in contrast with its predecessors and which considers each sound structure substance dependently as an autonomic part of the whole.

This is extremely important in understanding the functions of the basic structures (12 šu ū ; 12 m qām tin [17]) and their internal links. Abd al-āir discusses them, commenting on the ninth chapter of Ṣifī l-Dīn’s Kitā — out the names of the famous scales” considering the terminological inconsistencies in the arguments of al-‘Urmwī in his successor Qut -Dīn l-Širāzī (1236 – 1311).

Al-M rāgī writes:

“This needing [in Go] and insignificant [to Him], comparing their works, so will judge and explain [below] all relate with them. In fact the term ‘p r’ in the [voc ul r y of] musician-pr ctitioners is the 12 scales (wār) s st te ove: they call the 12 m qām ‘y the term ‘p r’. The 12 scales were selected (‘intixā) n correcte (mun q q h) from the 91 scales n were called y 12 scales (āir) s st te ove. These 12 scales (āir) took place un ou te ly in his own ‘root’ (‘ sl). Well-known to all people (mašhūr) scales (wār) cutly relate the ‘roots’ (‘uṣūl) n the ‘r nch’ (furū). The ‘roots’ of 12 m qām t re Uṣṣāq Rāst Huseinī n Hijzī ec use ‘Uṣṣāq is ‘root’ for Bus lik n N vā. N vā n Bus lik relocate t [his pitch] centers (m rākiz) n the tetrachord r nks of Uṣṣā re re l. Z ngul is include in Rāst n Zir fkn R hāvī n Hus in ī in Isf hān lthough the interval of small semitones (qıyy) in the Hus in ī is ppe rs ut other tones re include. Some tones of R hāvī re in Zangula, while others re in Hijzā rāq n Buzurg” [8].⁴

Thus, unlike the greater system, there is absolutely other part-and-whole relationship in the ‘root- r nch’ systematization of 12 šu ū . We can see the results of the analysis in the table (Fig. 5). Transition from one structure to another is possible with the mutation from one to four elements (tones) of the basic structure (‘root’) ut other elements are the same.

In the case of the non-hierarchical paradigm, (1) the parts are not contrary, (2) have an indissoluble connection, and (3) the whole in the case of its augmentation or reduction is destroyed. I see this as the opposite way to the greater system’s mode relations.

VI. CONCLUSION

Investigations of m qām theory n practice discovers two paradigms in the pitched-sound system’s description language. The first one is the hierarchical organization of the structural units, connected with the analytic research method and the genus-species relations of the basic categories (Eastern peripatetic school). The second one is the non-hierarchical organization of the units, connected with the synthetic method and the non-genus-species relations of the basic categories (al-‘Urmāvī). Thereby the “systematics” school (al-‘Urmāvī l-M rāgī and al-Širāzī) cannot be considered as a unified theory from this method’s point of view: the contradictions are evident not only between, but also in the theory of each of these scientists. Despite the fact that all theories use the same set of basic categories, the connectivity one is not the same and depends on the type of theoretical thought — substance-dependent or process-dependent as was considered above in the case of al-M rāgī’s Š r h. “Reconversion” relative to m qām theory denotes returning to the hierarchical paradigm from al-‘Urmvī’s Kitā l- wār where the process-dependent world picture w s est lish together with the “root- r nch” method of classical Arabic-Muslim culture. But, in fact, it i not return to the “foreign” investigation in w ys of music realities, having a formal therefore contradictory character, ec use two eh viour’s strategies of m qām s the world picture re n tur lly from m qām tr itions from M ghre to the boundaries of China. I hope to confirm this inference by analyzing the melodic lines and principle of modulation in different m qām genres in my next article.

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⁴ Translated from Persian by G. Shamilli.

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