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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

**THE ROLE OF NON-LINEAR DEVELOPMENT
PRINCIPLES IN MUGHAM DRAMATURGY**

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Applicant: **Pika Mirzaagha Akhundova-Talibli**

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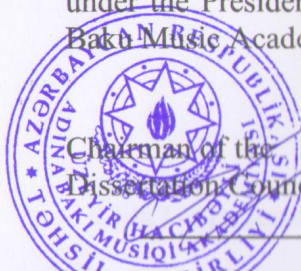
Scientific Supervisor: Doctor of Philosophy in Art Studies,
Associate Professor
Kamila Huseyn Dadash-zadeh

Official Opponents: Doctor of Arts, Professor
Jamila Ismayil Hasanova

Doctor of Philosophy in Art Studies,
Professor
Zemfira Kalpali Abdullayeva

Doctor of Philosophy in Art Studies,
Associate Professor
Afsana Aghayar Babayeva

Dissertation council FD 2.36 of Supreme Attestation Commission under the President of the Republic of Azerbaijan operating at the Baku Music Academy named after Uzeyir Hajibeyli.



Chairman of the
Dissertation Council: People's Artist, Professor
Farhad Shamsi Badalbeyli

Scientific Secretary of the
Dissertation Council: Doctor of Philosophy in Art Studies,
Associate Professor
Leyla Ramiz Zohrabova

Chairman of the
Scientific Seminar: Doctor of Arts, Professor
İmruz Mammad Sadıkh Afandiyeva

INTRODUCTION

Actuality of the Subject and Level of Development. Being a rich and inexhaustible treasury of Azerbaijani music, the mugham art has always been in the center of attention of researchers. Study of mughams from different aspects with the purpose of revealing its philosophical content broadened its spectrum of research. Thus, studied in numerous works within the scope of philosophy, the mugham art bears parallels with both classical-medieval and modern tendencies and directions of philosophy from the viewpoint of its dramaturgic basis, general construction, relation to cosmic energy, depth and etc.

Mugham is an open system. Its interminableness and endlessness can be proved also by its organic cohesion with modern methodological principles, one of which is the theory of non-linear approach.

Traced in several means of expression of the eastern thought, the non-linear approach was one of the important schools of philosophy in the 20th century, enabling a parallel study of similar aspects between mugham and synergy, which includes the interdisciplinary relation system. From this point of view, an analysis of mughams, which have a complex structure, from a synergetic aspect and discovery of its synergism and its main components may pave the way for revealing new ways for analysis of the centuries old mugham art, thus enabling significant progress for further studies.

As a result of studies conducted in accordance with modern methodological principles, reflection of the non-linear music philosophy in the development dynamic of mugham can be traced well, as the non-linear thought principle exists in its nature and its foundation. It manifests itself in every small segment of mugham up to its whole dramaturgical development layers.

One of the main factors enabling the non-linear approach in mugham and broadening its cognition spectrum on the basis of these principles, perhaps the most important of them is that mugham belongs to improvised art types. Inexhaustible improvisation possibilities existing in the foundation of the mugham art, which developed orally

throughout centuries, also variational characteristics in its every layer bear great functional importance, enabling its analysis not only as a whole system, but also at the level of separated layers. Most importantly, functional relations and energy exchange between the system and its components manifest themselves more clearly and in detail. So, being studied from different aspects for a long period of time, the mugham art enables us to see more clearly the reflection of relation between its general composition and components by means of the synergetic methodological approach. This side of the mugham art with the potential of wide and free improvisation for every performer within a definite existing scheme enables studying the role of non-linear development principles in the structure of a dastgah. Furthermore, it indicates existence of synergy in its every layer beginning from smallest motives and intonations up to its whole system.

In the present dissertation, the mugham art has been examined as an object of inter-disciplinary study and this old type of art has been researched by means of components of the synergetic methodological basis. At the same time, this study contributes to benefiting from the methodological principles of modernity in the field of mugham art studies. One of the main objectives set within the study was protecting primary objective laws of the mugham art, avoiding violation of its immanent features and approximating mughams to their initial styles of performance by means of modern achievements of science.

This different view is, first of all, related to human thought. Scientific achievements of the 20th-21st centuries have widely opened new horizons in front of us, have brought the possibility of new approaches to existing traditions and have played an extraordinary role in the analysis of mugham dastgahs by means of non-linear principles. By means of this new methodological basis, analysis of mughams, as previously noted, provides a better and clearer analytic approach to the synergy existing between the whole mugham composition and its components. At the same time, the synergetic approach bears definite information in regard to past, present and future development of every segment within the system established on the basis of self-regulation. So, established on the basis of self-regulation, synergy, according to

Sergei Kurdyumov, one of the founders of this scientific field, includes a new dialogue of human with the nature and new viewpoints to observe the world. Analyzing mughams from synergetic viewpoints, we can truly observe cohesion of information on its past and future in its every position. This provision is one of the factors conditioning the actuality of the dissertation.

As noted above, different aspects of mughams were studied by music researchers in different periods of history and every study contributed with its novelty, enriching the field and paving the way for new studies and revelations.

Main ramification of the present topic, namely, performance of mughams in transition to other mughams, their basic melodic and partially harmonic potentials for this purpose, including the circular principles in mughams and factors creating these principles and other features found their reflection as early as in works of medieval Azerbaijani scholars Safi-al-Din Urmawi, Abd-al-Qadir Maraghi, which were later followed by Mir-Mohsun Navvab in his tractates. The dissertation presents a comparative work on non-linear principles of the mugham dramaturgy and teachings of 20th-21st century synergetics, results of which were implemented to tractates and studies of various music researchers and scholars known in the field (including those from the Middle Ages). Several scientific works, monographs, theses, articles, tractates and other scientific publication have been viewed throughout the work on the dissertation.

Non-linear tones specific for oriental thought can be found in Safi-al-Din Urmawi's "Kitab al-Adwar" ("The Book on Cycles") and "Sharafiyyah" works and Mir Mohsun Navvab's "Wuzuh-al Arqam" (Explanation of Numbers) tractate¹.

An important source on systemization of mughams is Uzeyir Hajibeyli's work titled "Basics of Azerbaijani Folk Music". Hajibeyli's scientific concept constitutes the fundamental methodological basis of Azerbaijani mugham studies².

¹ Səfərova, Z.Y. Azərbaycan musiqi elmi (XIII-XX əsrlər) / Z.Y.Səfərova. – Bakı: Elm, – 1998. – 584s.

² Hacıbəyli, Ü.Ə. Azərbaycan xalq musiqisinin əsasları / Ü.Ə. Hacıbəyli. –Bakı: Yazıçı, – 2010. – 154 s.

Works as “Modes and Lines of Descent of Azerbaijani Folk Music”³ and “Mode Features of Azerbaijani Folk Music”⁴ by music scholar Mammadsaleh İsmayılov (1912-1994) can be viewed as a significant basis for studying transitions between mughams. In his work titled “Scientific Essays on Mode and Mugham Theories of Azerbaijani Folk Music”⁵, he analyzed mode tonal changes existing in numerous music genres, including folk songs and voluminous mughams with complex structure.

M.J.İsmayılov, from the other hand, in his work titled “Genres of Azerbaijani Folk Music” defined the place of the mugham art in the genre system of Azerbaijani folk music tradition⁶.

Another significant source in the study of mughams is Afrsiyab Badalbayli’s (1907-1976) “Explanatory Monographic Music Dictionary”, where explanation of many terms related to the mugham genre is present. This significant source also includes valuable information on the history of development of the mugham art⁷.

An important role in the study of the mugham art belongs to Ramiz Zöhrabov (1937-2017), whose monograph titled “Mugham”⁸ and other scientific researches as “Theoretical Problems of Azerbaijani Mugham”, “Azerbaijani Mugham Classifications”, “Percussive Mughams”, “Azerbaijani Professional Music with Oral Tradition”⁹ can be considered as important material and significant basis for new generation researchers for developing mugham studies.

Different aspects of the mugham art were studied also by

³ Исмайллов, М.Д. Родственные связи азербайджанских ладов. // Ученые записки АГК им. Уз. Гаджибекова, Баку:1972, № 9. с.3–18.

⁴ Исмайллов, М.Д. Ладовые особенности азербайджанской народной музыки // Ученые записки АГК им. Уз. Гаджибекова, Баку, 1969, № 2. с.3–34.

⁵ İsmayılov, M.C. Azərbaycan xalq musiqisinin məqam və muğam nəzəriyyəsinə dair elmi metodik öçerklər / M.C.İsmayılov. – Bakı: Elm, – 1991, – 117 s

⁶ İsmayılov, M.C. Azərbaycan xalq musiqisinin janrları / M.C.İsmayılov. – Bakı: İşıq, – 1984. – 100 s.s.

⁷ Bədəlbəyli, Ə.B. İzahlı-monoqrafik musiqi lüğəti / Ə.B. Bədəlbəyli. – Bakı: Elm, –1969. – 246 s.

⁸ Zöhrabov, R.F. Muğam / R.F.Zöhrabov. – Bakı: Azənəşr, – 1991. – 219 s.

⁹ Zöhrabov, R.F. Şifahi ənənəli Azərbaycan professional musiqisi / R.F.Zöhrabov. – Bakı: Azərbaycan ensiklopediyası, – 1996. – 68 s.

Z.Y.Safarova, R.A.Mammadova, G.A.Abdullazada, S.Kh.Aghayeva, S.Y.Baghirova, E.A.Babayev, F.I.Chalabiyev, A.N.Guliyev, G.B.Shamilli, A.Aliyev, S.M.Farhadova, C.I.Hasanova and others.

As to the transitions between mughams, studies of music researcher Shamil Ismayilov can be noted. His articles “Transposition Problems of Mugham Tonalities” and “Analysis of Mugham and Actual Problems of its Terminology”¹⁰ present a unique and different approach to transition issues.

Benefiting from several methodological principles of synergetic paradigm for the first time in Azerbaijani ethnic music studies, Kamila Dadashzada researched occurrence forms of self-regulation processes in the artistic system of epic work examples.

Also, Turkish music researcher Erol Deran studied modes with transition potential in the melodic basis of mughams, which he presented in his scientific work titled “Examples of Transition from a Mugham to a Mugham”¹¹.

Subject matter and Scope of the Research. The subject matter of the research work is appearance form of several provisions of synergism, which is one of the directions of the 20th century philosophy, in the old mugham art, including in the Oriental thought.

Performance of mughams with transitions, analysis of the performance in traditional and modern approach and a comparative study by means of synergetic principles on the basis of musical notes constitute the scope of the research work.

Constituting the main direction of synergetics, the non-linear paradigm is closely related to concepts as fluctuation, bifurcation, interphase transition, fractal dimension, chaos, different development regimes and etc. which are very important for this scientific field. These concepts are directly correlated with the appearance of instability observed in the nature, science, art and in other spheres. Sometimes, implemented individually or in a parallel form, a definite principle creates new non-linear levels. Their mutual existence

¹⁰ İsmayilov, Ş.A. Muğam təhlili və terminalogiyasının aktual məsələləri // – Konservatoriya, – 2019, №3 (45), – s. 4-23

¹¹ Deran, E.B. Makamdan makama geçki örnekleri / E.B.Deran. – İstanbul: Pan Yayıncılık, – 2018, – 140 s.

divides the structure, even sometimes dissolves it, while sometimes, manifesting a constructive attitude, restores its position prior to division.

Objectives and tasks of the research include revealing non-linear self-regulation principles in mughams. The following tasks has been wet within the dissertation in order to research non-linear appearance forms in mughams:

- Research and analysis of similar sides of Oriental thought, the mugham art and synergetic worldview;
- Analysis of the “Rast” and “Shur” instrumental mughams from the synergetic aspect on the basis of note examples.

At the same time, revelation of the aspects in the dissertation is reflected in the following factors:

- a) Origination of the non-linearity from Oriental thought;
- b) Improvised beginning of the mugham art;
- c) Creative consideration of the performer;
- d) Complementation of rational and irrational sides;
- e) Variable features in mugham;
- f) The role of the deductive principle in revelation of non-linear layers.

Methods of Research. It includes research of several features of non-linear approach in instrumental mughams and various materials belonging to the mugham art. Notably, in the mentioned instrumental mughams, main methodological principles of synergetics can, sometimes, be observed not in one, but in several appearance forms. The research has been conducted on the basis of the scientific-theoretical method. At the same time, general theoretical principles of music studies and scientific concepts researched by well-known Azerbaijani and foreign music scholars constitute the methodological basis of the dissertation. The method of transition from practice to theory has also been used in the study together with methods of systematic and complex approaches.

Main methodological basis of synergetics consists of the non-linear approach, which enables deeper comprehension of the analogical development principles existing in the structure of mughams using new scientific methods. Furthermore, basing on the

improvised beginning of mugham, the factor of instability and its extraordinary position in the principle of general development constitute the “idea selection from given alternatives” of synergetic paradigm, thus becoming important columns of the main methodology.

The complex research method is the main method in the dissertation. In the research process, analysis methods accepted in ethic music studies were used together with the comparative analysis method based on comparison of philosophical aspects with mughams. In the dissertation, methodological basis of research, its application and historical-theoretical issues special to the mugham art based upon the complex method. Working on the dissertation, we reviewed and benefited from works by medieval Azerbaijani scholars as Safi-al-Din Urmawi, Abd-al-Qadir Maraghi, tractates of 19th century researcher Mir Mohsun Navvab, including studies of U.H.Hajibeyli, M.J.Ismayilov, Z.Y.Safarova, R.F.Zohrabov, S.Y.Baghirova, K.H.Dadash-zada and other music researchers. At the same time, works of foreign scholars as G.Haken, S.P.Kurdyumov, E.N.Knyazeva, I.A.Yevin, I.R.Prigozhin, E.B.Deran and others were involved during the research process.

Main Postulates Presented for Defense constitute an important direction of the conducted research and can be listed as below:

- Correlation of the old mugham art with philosophy;
- Uniqueness of mughams and their complete organic cohesion with new tendencies of philosophy;
- Reflection of the non-linear thought type in tractates of representatives of Oriental philosophy;
- The non-linear thought type existing in tractates of medieval Azerbaijani scholars;
- Oriental artistic thought and its comparison with main contents of synergetics and its primary provisions;
- Influence of inter-disciplinary direction on several fields of science;
- Influence of the non-linear thought not only on performance and research of mughams, but also on the process of teaching;

- Parallels of mughams instructed orally with the non-linear methodology;
- Appearance of fractal dimension in mughams;
- Functional importance of the notion of bifurcation in the structure of instrumental mughams;
- Historical background of transitional performance of mughams with other mughams;
- Revelation of non-linear layers detected in mugham by means of synergetic paradigm and their approximation to initial performance styles;
- Various appearances of non-linear principles detected in classification of performers belonging to different generations of instrumental mughams;
- Existence of the cyclic principle at the level of non-linear layers in mughams analyzed by means of contents of synergetic paradigm;
- Broader analysis of infinite improvisation possibilities in the mugham art by means of main principles of synergetics;
- An important position of the smallest segment existing in the melodic base of mughams for general dramaturgical development;
- The role of synergetics in detection of self-regulation principles of the traditional music thought.

Scientific innovation of the research consists of the case that instrumental mughams notated for the first time by the author have been analyzed from a synergetic aspect. At the same time, as a result of application of methodological principles of the non-linear theory, an important role of bifurcation in dramaturgical development of mughams has been defined. Here, one of the most important points is that history of performance of mughams with transitions takes us to past centuries. Analysis of mughams on a new and modern methodological basis and their return to initial roots rich of various transitions enable restoration of their immanent, inner objective laws. In addition to this, for the first time, a role of non-linear principles in the process of mugham teaching has been defined within the research. Besides, in the dissertation, intersecting points of mugham

thought with medieval philosophy have been analyzed for the first time from a synergetic aspect. Furthermore, the conducted analysis has defined an organizing role of the principle of scale invariance (fractal dimension) in mugham dramaturgy. Eventually, the dissertation presents, for the first time, dramaturgical importance of non-linear features of mughams, their implementation in performance and teaching process, their usage in studies and their revelation by means of synergetic paradigm.

So, the conducted analysis enables revelation of importance of non-linear development principles in performance of instrumental mughams in mugham dramaturgy and in mugham teaching process.

Theoretical and Practical Importance of the Research.

Materials of the dissertation can be used as a basis for preparation of teaching programs, methodical advice and textbooks for higher and high education institutions. At the same time, the material can be used as an additional teaching material in “Mugham Studies”, “Ethnic Music Studies” and “Methodology of Music Studies” lessons of education institutions as Azerbaijan State Culture and Art University, Baku Music Academy after U.Hajibeyli, Azerbaijan National Conservatory, Azerbaijan State Pedagogical University. Furthermore, materials of the research can be useful for researchers closely interested in Azerbaijani mugham art.

Approbation and Application of the Dissertation. Main provisions and results of the dissertation have found their reflection in published articles and scientific-practical conferences. Articles related to the topic of the study have been published by the author in various journals.

The Affiliated Institution. The dissertation was performed at Azerbaijan State Culture and Art University, Department of History and Theory of Music.

Structure of the Dissertation by characters indicating each section separately. The dissertation consists of an introduction, three chapters (including seven paragraphs), a conclusion, a list of references and appendices. The introduction consists of 9 pages (15.300 characters) and volume of other parts is as the following: the first chapter – 49 pages (88.712 characters), the second chapter – 42

pages (42.127 characters), the third chapter – 39 pages (40.680 characters), the conclusion – 8 pages (13.066 characters). Total volume of the research is, excluding the list of references and appendices, 149 pages (201.937 characters).

MAIN CONTENT OF THE DISSERTATION

The first chapter of the dissertation is titled “**Mugham as an Appearance of the Non-Linear Mode of Thought**” and consists of three paragraphs.

The first paragraph is titled “**Synergetic Aspects of the Research of the Mugham Art**”. Synergetics is an interdisciplinary field studying systems developing on the basis of self-regulation and its fundamental idea exactly consists of the non-linear mode of thought.

Non-linearity is a methodological basis with high significance that enables to observe processes not only on the system level, but also in all layers, paving the way for a better analytic ability and making modern human more creative and capable to prepare himself better for innovations escaping from total mode of thought.

In the present study, the mugham art, a rich and inexhaustible treasury of our music has been researched from several aspects. Been previously studied by many scholars from different aspects, the mugham art still bears many unrevealed pages for studying from the aspect of synergetic paradigm. It enables to study not its layers, sections and sub-sections only, but also to feel and observe more clearly its functional relations and energy exchange, i.e. its synergy. This synergy exists in mughams between every single part beginning from the smallest motives up to the whole system.

Synergetics comes from the Greek word that means “conformity bearer”, which, in modern definition, equals to a methodological basis that reveals “a new dialog of human with the nature”, completion through new outlook on types of knowledge and approach transformed into stereotypes and also presents diversity. From this perspective, implementation of recent interdisciplinary scientific applications, including methodological principles of

synergetics, is important for solution of actual problems. Thanks to the application of these principles, existing scientific paradigms gained a new outlook, being enriched with new features and becoming important sources for further studies.

In parallel with the fact that many of provisions of the non-linear approach exist in the basis of the mugham art, another important side of our study is that this concept bears similarity with initial performance styles of mughams. Not accidentally, founders of synergetics G.Haken and S.Kurdyumov assumed that the mentioned mode of thought had originated from the East, despite that synergetics is a paradigm of the 20th century¹², as Oriental mode of thought bears in its various forms and, with no doubt, in the mugham art, definite intersecting points with the synergetic worldview. Truly, Oriental philosophy, its architecture, the miniature art and of course, the old mugham art bear many non-linear tones, revelation of which indicates to the importance of the synergetic methodological basis.

Constituting the main direction of synergetics, the non-linear paradigm is closely related to concepts as fluctuation, bifurcation, interphase transition, fractal dimension, chaos, different development regimes and etc. which are very important for this scientific field. These concepts are directly correlated with the appearance of instability observed in the nature, science, art and in other spheres. Detection of non-linear layers in the structure of mugham composition is conducted by means of a complex application of these concepts. Sometimes, implemented individually or in a parallel form, a definite principle enables a deeper comprehension (by means of a new methodological basis) of non-linear development principles existing in the structure of mughams.

In the second paragraph titled **“Non-Linearity as a Characteristic Feature of Oriental Mode of Thought”**, tractates of outstanding representatives of Oriental philosophy have been studied together with appearance forms of non-linear theory in tractates of medieval music scholars as S.Urmawi and M.M.Navvab. Appearance

¹² Князева, Е.Н. Курдюмов, С.П. Основания синергетики / Е.Н.Князева.– Москва: Ком Книга, – 2005. – 238 с.

forms of non-linear theory in Oriental aspect have been researched and existing respective provisions have been analyzed and applied in parallel to the mugham art.

Several parallels can be found also between the mugham art and some non-linear points existing in the “Ishraqiyyah” philosophy of Shahab-al-Din Yahya Suhrawardi – an outstanding representative of 12th century Azerbaijani philosophy. According to a branch of the “Ishraqiyyah” known as “Planes of Existence”, Suhrawardi considered that the very beginning of existence originated from the Light of Lights, existence of which was necessary. This meaning can be compared, in some sense, to the notion of *Maye* in mugham, as *Maye* represents a thought, where all sections and sub-sections originating from it finish their development by returning to *Maye*, just like in the notion of submission referred to the Light of Lights. The next plane of existence is substance and accident¹³. Substance has 2 sub-divisions: material and non-material substances. Here, we observe occurrence of a new layer, which can be explained by bifurcation bearing importance within the non-linear paradigm. The material substance is shadows created from the Light of Lights and can be thus compared to *Maye* and its sections, while the non-material substance bears an abstract meaning. It is an abstract light. This meaning can be compared to the potential improvisation “hidden” in each mugham, as it bears an abstract meaning for each performer and relies on his/her own imagination.

The next plane is accident, which means *created accidentally*, as its existence belongs to another subject, because it was created from an abstract light. If to compare the abstract light to the potential improvisation inside the section, then non-linearity in accident can be seen more clearly, as artistic imagination of a performer performing any mugham can transmit to a new mugham by means of a stimulus of definite stairs hidden inside him/her. This point, cognized in synergetic paradigm as bifurcation, necessitates creation of new layers by accident.

¹³ Məmmədov, Z.C. Azərbaycanca XI-XIII əsrlərdə fəlsəfi fikir/ Z.C. Məmmədov. – Bakı: Elm, – 1978. – 168 s.

Notably, the notion of accident, being close to many principles of synergetic approach, found its reflection in several tractates of representatives of medieval philosophy in Azerbaijan.

As known, the outstanding 13th century scholar, music theoretician Safi al-Din Urmawi provided analyses from many wide aspects in his tractate titled “Kitab al-Adwar”. As seen from the name of the tractate (The Book of Circles/Cycles), priority and main content of the work are maqams and their mutual relation.

AS noted by academician Z.Safarova, “*The scholar brought to the medieval science and music theory notions like daur, daire and dowr, which correspond to terms of later periods like mugham and parda*”¹⁴.

Apparently, the notion of mugham was, in old sources, closely related to the notion of *daire* and this principle reflected itself in its main, traditional structure and inner layers.

Revelation of non-linear layers existing in mughams enables us to observe various appearance forms of the cyclic principle.

Another creative and approach of Oriental mode of thought with broad perspective can be found in a tractate titled “Wuzuh-ul Arqam” and written by a 19th century philosopher Mir Mohsun Navvab.

M.M.Navvab wrote in his tractate: “*Harmony of music dastgahs and melodies depend on talent of performers. Choice of pitch to begin with and to continue until, modulations with pitches, finishing with a definite pitch and transmitting to a tasnif - these are interesting and at the same time, difficult issues of the mugham art*”¹⁵.

Apparently, according to M.M.Navvab, modulation between pitches, returning and transmission to *tasnifs* are up to performers, which is “interesting and difficult” and thus, main factors and elements linking between mughams, correct choice among them, transmissions and turns – all these can create an advantage for a performer, who knows how to use all these techniques for his favor.

Having taken its origin in the East, synergy, as an approach of

¹⁴ Səfərova, Z.Y. Azərbaycan musiqi elmi (XIII-XX əsrlər) / Z.Y.Səfərova. – Bakı: Elm, – 1998, – 584 s.

¹⁵ İbid, – s. 267

the 20th century, enables to restore immanent, inner objective laws of the mugham art on the basis of its initial roots and modern principles. From the other hand, revealing definite universal sides existing in the nature of mugham, it also enables to observe many provisions studied centuries ago by scholars more clearly.

In the last paragraph titled “**Reflection of The Non-Linear Principles in Mugham Teaching**”, the non-linear approach mode applied in the modern education process finds its cohesion.

Because there is no definite frame for the mugham art, the principle of difference is dominant both in performance and in teaching. Naturally, a pedagogue working with students, taking into consideration different levels of their individual potential, teaches mugham differently, thus varying his methodological approach. Deeper variation in methodology directly depends on the counterpart of this information transmission, i.e. a student with creative imagination can reveal new improvisation possibilities hidden in layers of the mysterious mugham art.

Undeniably, a new idea or direction emerging only thanks to polemics creates favorable conditions for emergence of innovations in the mugham art, which, being far from any frame, bears an improvisational initial and requires the most creative approach from every performer and pedagogue.

At the same time, the non-linear thought bears the side called “preparation for creation of innovation”, which refers to “a potential for development”¹⁶. Preparation for creation of innovation” and “a potential for development” can also be expressed through improvisation elements within mugham, as the improvisational potential with its high importance in the melodic structure of mugham may lead to formation of a new layer at any stage of the development of music, which, in its turn, may mean transmission to a new mugham. Mostly, a single stage may be favorable for transmission to several mughams. Here, individual approach of a performer gains importance,

¹⁶ Давиденко, А.А. Нелинейное мышление и его проявления в профессиональной деятельности учителя// – Москва: Учёные записки ЗабГУ, – 2016, – с. 25-31

where another important point constitutes of cohesion of the transmitted mugham to new development stages and bifurcations. Notably, versatility of development can be seen as a means for finding a common denominator in critical situations.

Referring the mentioned features to teaching process, a pedagogue can realize his potential, which can be characterized as “one more step towards creativity”, because application of the non-linear thought in methodology requires from pedagogues’ tolerance for non-linearity, preparation for creation of innovation and of course, creativity¹⁷. Possibilities for new research can exist only in case of completion of these features by the two sides. The mugham art, in its turn, still is a type of art with great potential for new findings.

So, in the teaching process directed to solution of incoming issues in the most creative way, formation of an individual and provision of his professional preparation become an important basis.

The non-linear teaching process obliges every student to think independently and to broaden his/her worldview by conducting a new search at every stage. Furthermore, it enables every individual to cognize adopted knowledge deeper through implementation of self-cognition activity in a more deliberate way.

Development of creative and critical thinking of a professional of the future ensures in a more conscious cognition of knowledge adopted through the non-linear teaching process, which, in its turn, contributes to enrichment of spirituality.

The second chapter is titled **“Rast” Mugham as a Phenomenon of the Non-linear Development Dynamics** and consists of two paragraphs.

The first paragraph is titled **“Development Principles of “Rast” Mugham in performance interpretation of Vamig Mammadaliyev”**.

As known, “Rast” mugham was considered as the basis and

¹⁷ Давиденко, А.А. Нелинейное мышление и его проявления в профессиональной деятельности учителя// – Москва: Учёные записки ЗабГУ, – 2016, – с. 27

beginning of all mughams in medieval music studies. Its importance in Azerbaijani mugham art is also very high.

Being the least changed mugham, “Rast” draws attention from the aspect of reconstruction of the archaic form of mugham. Tables, stable and unstable segments, variation features and other peculiarities of “Rast” pave the way for synergetic studies.

“Rast” is distinguished with its heroic character, warrior-like spirit and splendor. These characteristic features arouse interest for studying mutual relations of “Rast” with other mughams from the perspective of character and voice order. Being rich with non-linear layers, “Rast” instrumental mugham creates favorable conditions for transition of all mughams, as it bears a great potential of bifurcation not only in its surface, but also in deeper layers.

Analyses conducted on the basis of Vamig Mammadaliev’s performance are an explanation of more traditional and clearly interconnected sections of “Rast” instrumental mugham by means of the non-linear methodological basis. The purpose here has been revelation and study of possible transition variants between closely interconnected sections, among which unrevealed synergy was observed.

Mugham composition, which apparently was in the position of attractor in its initial stage with mughams affiliated to “Rast” group, enriches its content with bifurcations beginning from “Vilayati” section and up to “Shur” group. A new bifurcation layer chosen in accordance with the principle of “idea selection from given alternatives” of synergetic paradigm returns to the bifurcation, creating new micro-successions, and also bears a strong basis for new bifurcations to occur after it. So, the development process that continues with “Shushtar” and “Segah” after “Shur” group, after which we observe bifurcation to “Bayati-İsfahan” section of “Bayati-Shiraz” mugham from “Garai” mugham. This bifurcation indicates to non-linear layers created by endless transition potential existing in mughams.

Conducted researches prove that between different mughams and between their sections and sub-sections exists synergy in deeper layers of mughams. Explanation of the transmissions by means of

new scientific achievements enables performers to benefit in a maximum level. Every existing stage and each motive is an important potential for a transition. It is a potential that requires a highly sensitive approach to every smallest detail and obliges a more analytic observation of bifurcation possibilities hidden in details. So, a chain of development waves occurs, where each wave acts as a support for the next one, gaining more and more space and scale. Titled “Umm al-Mugham” – the tother of mughams, “Rast” could exist throughout centuries until today. Its analysis by means of the non-linear approach and other synergetic principles indicate to its vast potential. Being the initial mugham and the basis for all of them, it paves the way for all mughams. It naturally conforms not only to all other main mughams, but also to auxiliary mughams and their sections and sub-sections.

The last paragraph of the second chapter is titled **“Rast” mugham as an analysis of synergetic object in Shahriyar Imanov’s performance interpretation**”. Here, bifurcation potential existing between sections of “Rast” mugham has been researched from a more modern aspect. A more modern aspect here refers to addition of new possible non-linear layers (occurring within definite determined frame) of the traditional approach with preservation of main columns. Uniqueness and the cosmic energy in it not only broaden the tafsir amplitude for the performer in the performance, but also indicate for the researcher to new research directions not noticed until today. For instance, within a 2nd type analysis in the melodic basis of “Vilayati” section with “Shur” influence we can sense “Bayati-Shiraz” mugham and here the main support is maye’ 5th – the reliance pillar of “Vilayati” section. Relying upon this pillar, “Bayati-Shiraz” sounds with high pitch after direct transmission from “Vilayati”. At the same time, each of four consecutive notes existing in the melodic basis of “Vilayati” “Basta-Nigar” section of “Chahargah” mugham. It is a situation, which can be explained by means of the principle of fractal dimension of synergetic paradigm, as not being among mughams close to “Rast”, still “Shushtar”, “Humayun” and “Chahargah” bear definite support pillars in their melodic basis, which indicates to different appearance forms of scale

invariance principles in mugham dastgahs and at the same time, enables to study not one, but several components of synergetic paradigm within its analysis.

Conducted studies prove that these signs can occur both in melodic and harmonic basis of mughams, because parallel review of melodic and harmonic sides creates favorable conditions for deeper and broader investigations.

Despite that analysis of “Rast” mugham includes bifurcations, as they are the priority of our study, other components of synergetic paradigm – fractal dimension, coherence, attractor, development regimes and etc. are also present in the study, because all these principles comprehensively exist with their various features in the inner dramaturgy of instrumental mugham. This manifests itself in analyses both in traditional and more modern perspectives.

Actually, approaches of two performers itself is an appearance of non-linearity, which is important, as noted in the first chapter of the dissertation, not only in the inner development structure of the mugham art, but also in the teaching process.

The mugham art, which gave us the chance to come to these conclusions as a result of analyses conducted on the basis of principles of synergetic paradigm, indicates to the importance of the non-linear approach existing in the dramaturgical structure of the old mugham art, which is characteristic for Oriental philosophy. Maybe even more importantly, it also paves the way for reconstruction of the archaic structure of mugham.

The third chapter of the dissertation is titled **“Shur” mugham as a manifestation of nonlinear development dynamics**”. This chapter consists of two paragraphs. In paragraph named **“Nonlinear development principles of ”Shur” mugham in Vamig Mammadaliyev's performance interpretation“**, “Shur” mugham in the context of its unique structure and intonation features was analyzed on the basis of a number of provisions of nonlinear theory. Both volume and rich dramaturgic basis of “Shur” instrumental mugham demonstrates the broadness of nonlinear development principles in it. This creates the basis for extensive analysis of the dastgah from the synergistic prism. It should be noted that these

exchange processes manifest themselves at the level of separate layers of dastgah.

This potential was widely expressed in instrumental mugham “Shur” which has its own transitional capabilities. In other words, no intonational return is accidental here. Each development layer, each stage of the impetus is of important functional importance and determines the basic structure of dastgah. These factors are not only observed within one instrumental mugham, but also ensures its interaction with other mughams.

Starting from “Shur-Shahnaz” section of “Shur” instrumental mugham, where fractal features are investigated in “berdasht” section, extensive bifurcation possibilities are analyzed. This bifurcation plan, which is rich in several mughams passages, contains in itself important features by discovering nonlinear layers, such as passages within mugham, different genealogies where these passages can be performed with branches and corners, growing branching centers and the foundation potential of all these processes for second type of analysis.

The last paragraph called **“Shur” mugham in Shahriyar Imanov's performance interpretation as an analysis of a synergistic object**” includes a different viewpoint of study on the initial analysis method of “Shur” mugham.

As mentioned above, the fundamental potential for these passages is enabled by primary analysis and occurring new bifurcations reaffirm the functional significance of nonlinear layers existing in the art of mugham by creating possible new variants of the initial analysis. For example: if in the initial analysis plan bifurcation of “Segah” mugham took place after “Shikasteysi-fars” section of “Shur” mugham, in the second type of analysis “Zabul-Segah” mugham belonging to “Segah” family is selected according to the principle of “possibility of choice from given alternatives” of synergetic paradigm. Thus, the process of bifurcation begins to develop at a deeper layer level. Hence, “Berdasht” section of “Zabul-Segah” which contains several mugham paints with unique sound structure carries potential of bifurcation to “Humayun” and “Shushtar” and “Muye” to “Shur” mugham. Wide variational

possibilities existing on melodic and harmonic basis of “Muye” section creates favourable conditions for the bifurcation of mughams belonging to the “Shur” mugham family. Thus, there is a bifurcation on both “Dashti” and “Rahab” mughams here. In accordance with the principle of “choice of idea from given alternatives, “Rahab” is defined as the next bifurcation layer among these mughams and it is “Rahab” that brings us back to “Shur” instrumental mugham.

“Samayi-Shams” is a high-pitched section in “Shur” Mugham. At the same time, it is the zarbi (percussion) mugham in this Mugam-dastgah . This high-pitched tessitura may be an indicator of some new bifurcation for the researcher. Here it is as if the musical senses prepare the “Chahargah” Mugam. But this preparation must be organically combined with “Shur”. In this reconciliation, the “Shur-Shahnaz” section can act as a mediator and push force. Thus, during the performance of “Shur-Shahnaz” when the note “la” is halted in half tone, we get the sound order of “Chahargah” Mugham. Here, naturally, the “Mansuriyya” section of “Chargah” contains a new bifurcation layer. Due to the initial phrase of “Shur-Shahnaz” section as if the instrumental mugham coming to an end got an unexpected new layer of bifurcation. With this the processes change dramatically according to the S mode of the synergistic paradigm and enter a new wave of development. It is symbolic that bifurcation in the section “Mansuriyya” took place after the “Samayi-Shams”. Both sections are high-pitched and rhythmic mughams of their belonging mugham-dastgah. This parallel process, as if taking place in different substations, causes the bifurcation plan of the instrumental mugham “Shur” to acquire a rather original quality.

The analysis of Shahriyar Imanov's performance version crosses the structure of some kind of synergistic paradigm according to HS regime. Thus, based on the results obtained during the initial phase of analysis, without changing the dramaturgic sequence new branches are created within the main bifurcation impulses. Indeed, from certain points of the basic bifurcation plan, the structure crosses and forms new nonlinear layers. Then a return to the initial branching phase occurs through the same passages that continue the bifurcation sequence at the level of deeper layers. As a result, the initial

bifurcation process continues its development from the point where it remains.

As such, both methods create integrity between the analysis process. The analyzes that make up the second stage, originate from the first and the relationship between the aspects of the analysis is not lost.

Analysis of Shahriyar Imanov's interpretation of the above-mentioned “modern approach” is based on certain frameworks. No matter how modern prisms are included in the bifurcation process, the performed Mugham as well as the sound order of branches and sections were treated with utmost care and attention. Sometimes these bifurcations which could have been done freely were abandoned in order to not damage the core of the Mugham. Thus, the new passages penetrate into the core of the musical material and serve the purpose of investigating the nonlinear layers existing in it. The distinctive aspect of the research is mainly manifested in the line of development of the musical structure. Thus, certain sequence of passage drawn from bifurcation potential of the first “Shur” instrumental mugham, move differently in the second stage: moves not in a horizontal like in the first stage but rather in a vertical direction.

However, despite the fact that these analysis are directed in a different direction, they serve the same purpose and the same purpose and take their start from a single basis.

The **main findings** of the dissertation are as following:

- Each Mugham in its structure necessarily carries nonlinear principles;
- These principles can be extensively analyzed through the components of the synergistic paradigm;
- The transitional potential between the mughams can be viewed from different angles;
- These passages exist implicitly besides being clearly felt;
- The variational features existing in mugham encourage the researcher to return to the analysis she/he has done many times. The discovery of new parties is inevitable during the return;
- The discovery of the principles of nonlinear in mugham reveals

various forms of circular principle;

- Sometimes the process of evolution in the performance of mughams, and sometimes the dynamism and opening new paths for development, gives us the opportunity to analyze this process through different modes of synergistic paradigm.
- The application of synergetic principles in the field of analysis of mughams performance through transitions creates conditions for the detection of deeper nonlinear layers by studying these passages more analytically.

As a result of all above mentioned provisions, one needs to reiterate that the study of the art of mugham, which includes many aspects that have not been analyzed today, through synergetics- an important achievement of the philosophy of the XX century- will open new horizons in the field of more extensive study of mugham. These horizons extend from the beginning of the art of mugham to the present time. The art of mugham, which carries a number of nonlinear layers on the basis of dramaturgy, has passed a long way of development from the past to the present and has undergone certain changes. But its analysis from a diachronic point of view, returning to the initial methods of performance, leads to a deeper search through new scientific achievements based on this tradition. The knowledge gained as a result of these researches will create conditions for a more effective application of mugham not only in performing arts, but also in composing school, in teaching mughams. This is because Mugham and nonlinearity is a science that takes its development from the same beginning and meet each other at different points of intersection and opens an infinite space in front of the person who has mastered it. This world, based on the teaching of the art of mugham, the methodology of mugham studies, as well as on national grounds, will create a solid foundation for more interesting, unexpected and colourful composer searches thanks to the nonlinear layers of mugham. Thus, our mughams, which are always an important source for the representatives of the composer school, can be applied in a deeper, varied and original way as a result of new lines and new findings obtained by opening of nonlinear sides.

The ancient art of mugham is at the forefront of the entire

human consciousness and creative imagination. It is organically combined with new findings, penetrating into all areas of music and expanding the spectrum of research based on important nonlinear principles in its dramaturgic development. As long as this non-linearity is analyzed in a rather original way, in the context of the convergence of greatness and modernity, it does not lose its original appearance, but at the same time proves that it is as modern as it is ancient.

The main content of the dissertation has been reflected in the following works:

1. Axundova-Talıblı, P.M. Muğam dramaturgiyasında qeyri-xətti inkişafın bəzi prinsiplərinə dair // Türksoylu xalqların musiqi mədəniyyətinin tədqiqi problemləri XIV Beynəlxalq elmi-praktiki konfransın materialları, – Bakı: ADMİU-nun mətbəəsi, – 2015, – s.154-156.
2. Axundova-Talıblı P.M. Muğamsünaslıqda bəzi sinergetik anlayışların tətbiqinə dair // – Bakı: Elmi əsərlər, – 2015. № 19,– s.194-198.
3. Axundova-Talıblı, P.M. Muğam kompozisiyasının formalaşmasında qeyri-xətti inkişaf prinsiplərinin roluna dair // Türksoylu xalqların musiqi mədəniyyətinin tədqiqi problemləri. XV Beynəlxalq elmi-praktiki konfransın materialları, – Bakı: ADMİU-nun mətbəəsi, –2 may, –2016, – s.56-58.
4. Ахундова-Талыблы, П.М К проблеме нелинейной природы восточного мышления // Фундаментальные и прикладные исследования музыки в XXI веке Международная научно-практическая конференция, – Алматы: Типография Казахской Национальной Консерватории, – 15 декабрь, – 2016, –с. 94-95
5. Axundova-Talıblı, P.M. Muğam-qeyri-xətti təfəkkürün təzahürü kimi // Türksoylu xalqların musiqi mədəniyyətinin tədqiqi problemləri XVI Beynəlxalq elmi-praktiki konfransın materialları, – Bakı: ADMİU-nun mətbəəsi, – 19 may, –2017, –s.64-66.
6. Axundova-Talıblı, P.M Şərq təfəkkürünün sinergetik aspekt-

- ləri // Традиционная культура тюркских народов в изменяющемся мире I международная научная конференция, – Казань: Ак буре, –12-15 апреля, –2017, –с.46-48.
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 9. Ахундова-Талыблы, П.М. Восточное мышление в контексте синергетической парадигмы // – Москва: Музыка и время, – 2020. №4, – с. 31-32.
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