

# MIND AS A CAUSAL SYSTEM IN AL FARABI'S PHILOSOPHY OF MUSIC

<sup>1</sup> G. Nurysheva, <sup>2</sup> N. Tercan

## ABSTRACT

Music elaborates through with a more powerful cognition system in which melodies shares some aspects with mathematics and language in general. This research reveals the basic aspects of analysis, music as a self-referential structure and transformative system, and focuses on the concept and definition of perception. There is still not many treatises in the philosophy of music about the functioning of musical emotion in the brain. Al Farabi's Great Music Book is the first and still unique in this regard. One of the most important reasons that makes this work valuable is that Fârâbî's work named Kitab al Musîqa brings new information to his music studies. This review details the evolutionary development of music and its cultural and psychological effects on the human mind. For centuries, philosophers queried the interaction and fundamental principles and causality of music in human life. The concept of musical perception, which is formed as a result of the relationship between perception and music, has been examined. A musical perception process was created by using general perception processes. Al Farabi illustrates the clarity of these questions from a neuroscience perspective in his Kitab al Musîqa al Kabir review. We examine with innovative results in the conditions of an intense history of intellectual research established by cognitive systems that insist on various aspects of human musical behavior. The main purpose of this article is to remember Al Farabi's authority in music philosophy. This article claims that Farabi's philosophy is valid in the conceptual framework of this century. Methodologically, we chose to translate from the original Arabic manuscript of Kitab al Musîqa al Kabir. The proposition in Al Farabi's Philosophy that music is a kind of image is impressive.

**Key words:** Philosophy of Cognitive Science, Theory of Mind, Gravity, Music Imagination, Predictive Processing, Embodied Music Cognition.

<sup>1,2</sup> Al-Farabi Kazakh National University, Almaty, Kazakhstan

Corresponding Author:  
Nurfer Tercan,  
nurfer.tercan@gmail.com

*Reference to this article:*  
Nurysheva G., Tercan N. Mind as a Causal system in Al Farabi's Philosophy of Music // Adam Alemi. – 2022. – № 1 (91). – P. 14-26.

## АҚЫЛ-ОЙ – ӘЛ-ФАРАБИДІҢ МУЗЫКА ФИЛОСОФИЯСЫНДАҒЫ СЕБЕПТІК ЖҮЙЕ

**Аннотация.** Музыка танымның анағұрлым күштірек жүйесімен толықтырылады. Бұл жүйеде әуендердің математикамен және жалпы алғанда тілмен кейбір ортақ белгілері бар. Ұсынылып отырған ізденісте музыканы өзіндік референтті құрылым және трансформацияға қабілетті жүйе ретінде талдаудың негізгі қырлары ашылған және қабылдаудың концепциясы мен анықтамасына басты назар аударылған. Адам миындағы музыкалық эмоциялар туралы трактаттар музыка философиясында әлі күнге дейін аса көп кездеспейді. Осы

тұрғыдан алғанда, Әл-Фарабидің музыка кітабы – алғашқы және бірегей туынды. Осы жұмыстың құндылығын арттырушы себептердің бірі – Фарабидің «Китаб әл-Мусика әл-Кабир» еңбегінің оның музыкалық зерттеулеріне жаңа ақпарат енгізетіндігі. Бұл шолуда музыканың эволюциялық дамуы және адамның ақыл ойына мәдени және психологиялық әсері туралы жан-жақты баяндалады. Философтар ғасырлар бойы музыканың адам өмірімен өзара әсері, іргелі себептері мен себептілігі туралы сұрақтарды қойып отырды. Қабылдау мен музыканың өзара әсерінің нәтижесінде қалыптасатын музыкалық қабылдау ұғымы зерттелген. Музыкалық қабылдау үдерісі қабылдаудың жалпы үдерістерін қолдау арқылы қалыптастырылды. Әл-Фараби осы сұрақтардың неврология тұрғысынан айқындығын өзінің «Китаб әл-Мусика әл-Кабир» еңбегінде көрсеткен. Біз адамның музыкалық мінез-құлқының әртүрлі қырлары туралы баяндайтын когнитивті жүйелер анықтаған интеллектуалдық зерттеулер аясында жаңа нәтижелерді талдадық. Мақаланың негізгі мақсаты – Әл-Фарабидің музыка философиясындағы беделін еске алу. Ізденісте Әл-Фараби философиясы қазіргі заманғы концептуалық шеңберде маңызды екені туралы тұжырым жасалған. Методологиялық тұрғыдан біз «Китаб әл-Мусика әл-Кабир» еңбегінің арабша қолжазбасының аудармасын таңдадық. Әл-Фараби философиясындағы «музыка – бейненің бір түрі» деген қорытынды ерекше әсерлі.

**Түйін сөздер:** Когнитивтік ғылым философиясы, ақыл-ой теориясы, гравитация, музыкалық елестету, болжамды өңдеу, бейнеленген музыканы танып-білу.

## РАЗУМ КАК ПРИЧИННАЯ СИСТЕМА В ФИЛОСОФИИ МУЗЫКИ АЛЬ ФАРАБИ

**Аннотация.** Музыка дополняется более мощной системой познания, в которой мелодии имеют некоторые общие черты с математикой и языком в целом. Это исследование раскрывает основные аспекты анализа музыки как самореферентной структуры и трансформирующей системы, и фокусируется на концепции и определении восприятия. В философии музыки до сих пор не так много трактатов о функционировании музыкальных эмоций в мозге человека. Великая музыкальная книга Аль-Фараби – первая и до сих пор уникальная в этом отношении. Одна из наиболее важных причин, делающих эту работу ценной, заключается в том, что работа Фараби «Китаб аль-Мусика» привносит новую информацию в его музыкальные исследования. В этом обзоре подробно рассказывается об эволюционном развитии музыки и ее культурном и психологическом влиянии на человеческий разум. На протяжении веков философы задавались вопросом о взаимодействии, фундаментальных принципах и причинности музыки в жизни человека. Исследовано понятие музыкального восприятия, которое формируется в результате взаимосвязи восприятия и музыки. Процесс музыкального восприятия был создан с использованием общих процессов восприятия. Аль-Фараби иллюстрирует ясность этих вопросов с точки зрения неврологии в своем труде «Китаб аль-Мусика». Мы исследуем новаторские результаты в рамках интенсивной истории интеллектуальных исследований, установленных когнитивными системами, которые настаивают на различных аспектах музыкального поведения человека. Основная цель этой статьи – вспомнить авторитет Аль-Фараби в музыкальной философии. В статье утверждается, что философия Фараби актуальна в концептуальных рамках этого века. Методологической основой статьи выбран перевод оригинальной арабской рукописи «Китаб аль-Мусика аль-Кабир». Утверждение в философии Аль-Фараби о том, что музыка – это своего рода образ, впечатляет.

**Ключевые слова:** Философия когнитивной науки, теория разума, гравитация, музыкальное воображение, предсказательная обработка, познание воплощенной музыки.

### Introduction

Causality is gaining the most important questions related to this issue. Human naturally requires knowing the causality of his reactions to what he hears through external

perception. How does our mind make sense of the information it hears? The motion of a body, or behaviours, are the definitions of the data in our mind. Regarding our primary purpose is cognitive activity analysis. The power, relationships, processes and general

impressions of qualitative research depend on living and exploratory skills in actual knowledge. This work remained faithful to the foundation of philosophy, providing a theoretical explanation of its complex mood-regulating functions. It should be considered at the forefront that sound and music transform language and logic and that all disciplines as complex as philosophy support each other. With the scientific approach systematised by Al Farabi in philosophy, the goals and strategies set by this article and the behavioural role of music in individuals became clear.

Al Farabi's own life story determines the subject and purpose of the research. The true story; while discussing the artistic nature of music and the scientific nature of music, it also presents research methods. Farabi's experiential story improved this article in many ways. While this study allows discovering the meaning of music, it has also revealed that a significant part of the music is disappeared. The treatise of research succeeded in showing the expressive ability of music in essence revealed by the senses. The model created described different regulatory processes and provided a sound theoretical framework for the psychological investigation of musical behavior. Here, it is necessary to refer to the founders of the philosophy of science centuries ago. If the researcher aims to understand a subject adequately in science and philosophy, first should reach the relevant fundamental issues. The secrets of the brain, perception and cognition continue to be the most fundamental issues of life. Humanity is rapidly moving towards creating a new lifestyle on deep learning and neural networks for the 21st century and beyond. Recently, the philosophy of neuroscience has taken this problem back into consideration.

### ***Methodology***

This research is qualitative (qualitative research) using archives data — the method used in this research, focusing on

content analysis techniques and the basic structure. Our original text translation in inquiries is a sensitive approach to examining Farabi's reflections with the segmentation framework in the form of both primary data and secondary data. Primary data sources are Farabi's original Arabic manuscript "The Great Music Book, Kitab Al Musiqā Al Karim" and data on classification of sciences, secondary data sources research themes. The research steps were carried out by examining Farabi's philosophical views on the art study based on the science of music, classifying, analysing, systematising and then formulating the data. We compared existing data in the historical classification of philosophy. With considerations of this century on the emotional response provided qualitative data. This discussion method has enhanced our commitment to the Philosophy of Art and Aesthetics, Psychology, and Neuroscience.

### ***The Great Treatise on Music***

The art of music that portrays mental activities with emotional feelings on an abstract ground affects the soul. Music, which creates oscillations in the inner world depending on time, place, frequency, and place, is the inner journey's unique assistant. According to Al Farabi, human acquires information through three forces. These are senses, imagination, and thought. The most important examples of the scientific perception transformation arising from the paradigm are in the history of science, astronomy, and physics. A philosopher can change perception patterns by bridging Western science and philosophical thought with the East's fundamental beliefs. This bridge, which still exists, is the "Second Master" (Al Mu'allim al-Thani) Al Farabi.

Muhammad Ibn-Tarkhan Abu Nasr Al Farabi (Alpharabius) was born in Transoxiana, was a Christian physician in Baghdad and studied the science of languages and letters. He died in Damascus in 950 at the

age of eighty. Based on Plato and Aristotle's philosophy, he synthesized the studies of Islamic truth. This philosophy, which he outlined, became the bridge that reconciled eastern and western thought. Hence, he deserved the name "second teacher" (Al-Mualim Al Thani), together with First Master Aristotle, to represent Perfect instruction. Interpreting the knowledge of Aristotle and other Greek philosophers, Al Farabi's considerations are as follows; The best known are *Risalat al Fusûl Hikâm* (Book of Wisdom) and *Risalat fi Ârâ Ahl al. Medine al Fadilah* (Book on the views of the superior townspeople). In the Second and Al *Siyasâh al Madaniyah* (political regime), Al Farabi presented it, inspired by Plato's *Republic* and Aristotle's *Politics*.

In two treatises consecrated to rhythm in *Kitab al Musiqâ*, Al Farabi discusses both the expressive and auditory aspects of music production and the various techniques that performers apply to basic structures. Aristotle's comments on *De anima*, *Poetics* and *Nicomachean Ethics* and his explanations on the effects of music in his studies on human intelligence.

Universal permanent systems have constantly been an effective source of innovation in Humanity's enlightenment and science. This particular type of consensus or collaboration is the basis of ordinary science, the typical administration model of the scientific community. Different perspectives on events and facts emerge during this period, but only one of these changes a paradigm. There may be different perspectives on the event and facts in this period, but only one of them shifts a paradigm. The paradigm change refers to the transformation to a new era of 'ordinary science.' In this respect, too, the new paradigm unveils the 'scientific revolution.'

The 'Great Music Book' (*Kitab al Musiqâ Al Kabir*), the most crucial Arabic work on music compiled by Al Farabi, has been translated into Hebrew and Latin. In addition, it has reached Europe with the content of the classification of the sciences, *De Sci-*

*entiis* and *De ortu Scientiarum*, and maintained its effectiveness for centuries. Here, Al Farabi provides instructions on sound perception and psychological impacts of music in an Aristotelian setting based on *Physics*, *On the Spirit*, *Nicomachean Ethics*, and *Posterior Analytics* (concerning music classification).

*"The source of music is nature, which is the senses and external laws. When someone perceives hearing as a mathematical network of relationships, they overcome prejudices; this thought transformation creates cognitive awareness with a universal approach to music. Al Farabi provided a reconceptualization of theories in music history, their paradigmatic potential, and cultural history"* [1, p. 177].

Al Farabi, *Kitab al Musiqâ II*. He developed this concept of music, which he wrote in detail in the department. Music theory always points to speculative discipline. In these two parts of Farabi, we encounter a unified music system design as the theoretical and practical aspect of music and its scientific structure. In this context, according to the essential reference about this treatise, which confirms our point of view; *"Al Farabi tells us that three conditions are necessary for the theorist of any art: to know the rudiments, to be able to discover what is attendant on them, and to be able to recognise and correct errors of others"* [2, p. 37]

Philosophy is the oldest and treasured of all disciplines in cognitive science. The first traces of issues related to the depths of consciousness are in ancient Greek philosophy. Philosophers have been active throughout most recorded human history, trying to devise and answer fundamental questions about the universe. This approach is free to examine any critical question on anything, from existence to knowledge, politics, ethics and beauty. Nevertheless, it still seems exceptionally mysterious that a subjective inner life accompanies the causality of behaviour. Still limited information about how consciousness arose or why it exists to believe that it originates from physical sys-

tems such as the brain. How does a physical system like the brain reach experience? What about the causality of such a system? Today's scientific theories about consciousness touch tough questions. The answer to how consciousness is compatible with the natural order with a detailed approach is still mysterious.

Al Farabi provides an approach to all problems with the effects of music on the mind, allowing rhythm and harmony to penetrate the inner part of the soul. Farabi's physiological metaphors are that sound waves with which the music evolves into direct physical contact are vibrating frequencies that reach the air. The emotional and aesthetic effects of music clarify directly from the physical properties of music sounds to their origin. Therefore, Farabi's speculative psychology and experimental proof that he inscribed in an early century still are the only treatises in philosophical discussions of music. We can begin discussing the philosophy and psychology of music and then the consequences of musical image and neuroscience, with the reflections of *Kitab Al Musiqā*.

The powerful effectiveness of music designates that we can find imitations and likenesses of nature in melodies. Farabi's musical experience includes cognitive theory, the conceptual framework of imagination (*takhayyulat*), and imitation (*taqlid*) interaction. Due to the different nature of the Harmony or rhythm and the synchronised, and music triggers emotional responses. When Caliph Councillors listened to Farabi's performance, they did not realise that the music affected their minds. Theories of imitation and expression assemble in his statement about music. It will be clear to mention here the musical performance of Al Farabi, which he outfitted on human virtue and presented to the participants in the caliphate council.

*"At last, he resolved to disguise himself and ventured to undertake the journey which promised him a rich harvest. Dressed in a mean costume, he made his appear-*

*ance at the court just at the time when the caliph was being entertained with his daily concert. Al Farabi, unknown to everyone, was permitted to exhibit his skill on the lute. Scarcely had he commenced his performance in a certain musical mode when he set all his audience laughing aloud, notwithstanding the efforts of the courtiers to suppress so unbecoming an exhibition of mirth in the royal presence. In truth, even the caliph himself was compelled to burst out into a fit of laughter. Presently the performer changed to another mode, and the effect was that immediately all his hearers began to sigh, and soon tears of sadness replaced the previous tears of mirth. Again he played in another mode, which excited his audience to such a rage that they would have fought each other if he, seeing the danger, had not directly gone over to an appeasing mode. After this wonderful exhibition of his skill, Al Farabi concluded in a mode which had the effect of making his listeners fall into a profound sleep, during which he took his departure. It will be seen that this incident is almost identical with one recorded as having happened about twelve hundred years earlier. The distinguished flutist Timotheus successively aroused and subdued different passions by changing the musical modes during his performance, exactly in the same way as did Al Farabi" [3, p. 57-58].*

Al Farabi argues two types of sound theories. He did not accept the Pythagorean theory of modulation revealed by the planets. These are natural and artificial sound sources. Every vibration substance is a cause of acoustic. Sounds radiate by vibrating with the energy they receive from the source. Vibrating objects are flexible and create sound. Flexible objects can generate sound frequencies and transmit sound waves. Since sound is a mechanical wave, its propagation is relative to the environment in which it exists. Sound frequencies are waves that progress longitudinally in the form of compression and expansion in environments. It is the pressure of sound waves and creates interference



impulse. Natural sound sources are spontaneously sound frequencies such as rain, wind, streams, thunder, live sounds and nature sounds.

The tendency to create melodies manifests one's strong affiliation to many different melodies. Comparing them to each other, contemplating the elements, rhythms, and how different notes correspond, integrates the mind with music's philosophy. When there is a natural tendency in this direction, one attains universal awareness of consciousness. Functionality increases as reasoning, feeling sound vibrations. It achieves perfection by determining the function of these melodic passages in each and repeating them. *"The theory of sound, definition of the note, the different dossier and sizes of intervals accompanied by instructions as to their arithmetic calculations, the consonances, the genres and their various species, their combination into systems and elements of rhythm"* [4, p. 54].

Emotion and Meaning in Music combine the principles of 'gestalt' psychology with knowledge theory in explaining how composers imagine expectations about music's progress. Although this scientific approach is not always at the forefront in music, harmony experiences always exist on scientific grounds. Therefore, Farabi's theory is an essential contribution to understanding how the musical pattern and experienced structure. Al Farabi states in his analysis that play (pleasure) is a beginning of serious pursuits (utility) and nothing is an end in itself. *"So the inference is this; if art is for pleasure, then emotional and behavioural balance are essential. It is the first level towards human healing and perfect happiness. All forms of play are meant to enhance rest, which in turn aims at restoring the energy needed for serious pursuits. So play in all its forms is, in fact, directed towards the more serious side of life. It is not an end in itself but rather a means to some of the things which ensure maximum happiness, so it is possible in this*

*context to consider play as having a beneficial role to humanity"* [5, p. 1185].

The reflections of the more recent philosophers and scientists, he declares, *"have led to the belief that the external phenomena which produce sound in the ear, light in the eye, and heat in the organ of heat-perception have nothing in common with the experience of sound, light, heat, etc. On the contrary, these external phenomena are supposed to be certain motions of matter. So, then, the scientist seeks to discover what sorts of external motion-phenomena cause sound, light, heat, etc. to arise in the human soul"* [6, p. 15].

The sciences aim to reach the result. However, research and inquiry methods are initially as ambiguous as 'perception' and 'imagination'. These two concepts determine the faculties or capacities. Perception is the 'ability' that causes or has the function of forming perceptual states. Imagination is the ability that produces or has the function of generating creative situations. The explanation Al Farabi induced to this subject is as follows. *"Gesture has been included in the sense of seeing which, by coincident motions and corresponding proportions, has been arranged to agree with metre and sound. This art, therefore, is included in two particular senses-hearing and seeing"* [7, p. 49].

First, images and imitations reveal mental images in the audience and listeners' minds. In most cases, the viewer or listener needs to be aware that there is an image or imitation that they are looking at or listening to a performance. However, the image can influence the perceiver to believe that they are looking at something real. Second, music elaborates through itself with a more efficacious cognition system in which music shares some aspects with mathematics and language in general. In this way, within the thresholds of similarity and analogy, many pivotal aspects of reasoning and emotion unite music with mathematical abstractions and numerous verbal and gestural intercourse aspects.

*"The principles of instruction in most of what this science comprises are distinct from the principles of being,<sup>1</sup> and it is through the principles of instruction that one comes to know the principles of being. For in every genus of natural things the principles of instruction are inferior to the principles of being, since the principles of being in such a genus are the grounds to which the principles of instruction owe their existence"* [8, p. 21].

Plato was referring to pre-existing ideas, 'Knowledge-data'. According to Plato, all science remembered the nature, proportions, and relationships of immutable essences, one of the access it initiated to Al Farabi. The pattern in which the human mind creates everything that it initially knew and imagined. The fluctuating representatives of the material world, the actions and virtues of people, the form and beauty appearing in the universe, the reflections of the archetypes are sufficient to approach these issues.

*"Because rhythm and harmony enter in the strongest manner into the inward part of the soul, and most powerfully affect it, introducing at the same time decorum, and making every one decent if he is properly educated, and the reverse if he is not.<sup>63</sup> Music creates in the soul temperance.<sup>65</sup> And when one yields up himself to be soothed with the charms of music, and pours into his soul through his ears, as through a pipe, those we denominated the soft, effeminate, and plaintive harmonies, and spends the whole of his life chanting and ravished with melody; such an one, at the first, if he has anything spirited, softens it like iron, and, from being useless and hard, renders it profitable"* [9, p. 65-71].

In recent years, Medical Professionals have provided reasonable conclusions of the brain's in-depth details and functionality. There are many experiments on the power of neuronal activity to produce music. As a result of these experiences, neurons follow collective dynamics and correlate with each other. It inspires together in a complex but not random community

activity. We also learn that neurons display their inhibitory action, which naturally creates incredibly rhythmic and bass parts. *"However, the central question of how the functional connectivity in the brain differs as a function of musical expertise during real music listening has still not been answered. Functional connectivity allows us to investigate brain states, or even categorize subjects, for example, distinguishing between patients and controls, and is a data-driven approach"* [10, p. 1:13].

Al Farabi strongly argues that one discovers something through rational ability, imagination, or sensation. He detailed the cognitive abilities of the soul (anima, soul) and spirit (spiritus), respectively, as sensitive, creative, and rational, corresponding to the triple structure of entirely, psychic, and spirituality (corpus). The Second Master also specifies the triple nature observation terms of perception and cognition. This terminological usage indicates his belief that microcosm and macrocosm correspond to each other. It also reflects the reality of the subject and the view that the object of knowledge constitutes a holistic. *"The things in common which all the people of the ideal city should know are, first, knowledge of the First Cause and all its attributes, then the things separate from matter, and the special attributes and grade of each, till one comes (sc. in descending order) to the active intellect'; etc. The whole passage is illustrative of the present fasl. The 'spiritual beings' or immaterial things, of which the 'active intellect' (al-'aql al fa'al) is the type, are called in spiritual bodies"* [11, p. 89].

What if the tradition of the ancient Ionian Greeks of the robust scientific, philosophical approach survived and flourished? Now philosophy has moved away from the nature of knowledge with the slave thought of beliefs, abandoned the meaning of life, day by day, the confusion of science and belief becomes meaningless. What if this light, born in the Eastern Mediterranean 2500 years ago, did not go out when it rose with Baghdad? Two

thousand years before the Industrial Revolution, philosophy had gotten stronger. What if the power of this way of thinking could be appreciated more generally? The world could save itself ten or twenty centuries more today. In comparison, gravity was scripted in theatre performance and performing arts in the 5th century regarding infant neuroscience.

*"The term 'musical knowledge' encompasses knowledge of both the speaking and writing disciplines in its broadest sense. It refers to the information learned and remembered by referring to rhythm, melody, and movement. Al Farabi begins by describing the melody (lahn) in the Kitab al Musiqā as an orderly performance (naghmāt) of tones. Farabi's unique formulations have inspired subsequent theorists over and over again. "First of all, it is essential to indicate what the art of music means briefly. The word 'music' [al-musika] means music. Melody [al-lahn] means a set of different sounds formed in a specific order, and a set of phonemes 'al-khuruf' formed in a certain way to express the meaning as usual" [12, p. 47].*

By the 20th century, it became more apparent that behaviourism is the subject of human psychology. Behaviourism claims that consciousness is neither a definitive nor usable concept. Always empirically trained behaviourist, that belief in consciousness, superstitions and magic go back to the old days. Although psychology did not emerge as a separate discipline until the late 1800s, this article reveals its earliest history as far back as the early Greeks. *"In cognitive psychology, a central notion is that emotions must be based on the "default" mechanism for emotion induction, namely a cognitive appraisal. Juslin and Västfjäll (2008) suggest a theoretical framework including six additional mechanisms through which music listening may induce emotions: (1) brain stem reflexes, (2) evaluative conditioning, (3) emotional contagion, (4) visual imagery, (5) episodic memory, and (6) musical expectancy. These mechanisms have specific characteristics as*

*related to, for example, information focus, ontogenetic development, brain regions involved, cultural impact, induction speed, and dependence on musical structure. Juslin and Västfjäll conclude that music evokes emotions through mechanisms that are not unique to music, and that the study of musical emotions could benefit the emotion field as a whole by providing novel paradigms for emotion induction" [13, p. 271].*

The imagination described here has much in common with Aristotle's fantasy. It occupies mainly the same place as a phantasy in the faculty hierarchy. Theoretical knowledge indeed is the best and primary. This information is sufficient on a system basis. This competence is characterized by what Al Farabi theoretically defined as the necessity to convey what is true in practical and meaningful terms - in other words, theoretical knowledge form practical knowledge.

*"A slow succession of lengthened tones expressed moderation and firmness; a rapid inequality of verse revealed disorderly and passions; the mind was transported by sudden transitions, and roused by impetuous reiterations of sound; a gradual ascent of notes accorded with all those affections which warm and expand the heart, and the contrary movement naturally coincided with such sentiments as depress the spirits, and extinguish the generous ardour of the soul. The natural perceptions of taste were gradually strengthened by habit; the principles of music were clearly ascertained and universally understood; and possessing the warmth and energy of the language of nature, they acquired the perspicuity and extent of the language of convention" [14, p. 53].*

*"It is possible to find [in some cases] that the "matter" respecting which the resemblance [with the example] obtains is [actually] conjoined with the example, and is not separated from it. But [in other cases] it [i.e., the "matter"] is [merely] imagined in the mind as connected with the example, so that the judgment about the "thing" in respect to which the resemblance obtains is*



*[accepted as] true, it [i.e., the "matter"] being [thus] connected with the example [in imagination]" [15, p. 128].*

The competitive music world cannot measure the composer by interpreting other common critiques. Instructors, supervisors, entrepreneurs and other players practice by standards. The "ego" feeling focuses heavily on the image that emerges from experience. This measurement is always subjective and deals with other people's interpretations, making it a victim of other people's emotions. What if music is about presenting something more practical? For example, when playing entertainment, if the purpose is to serve an ideal aesthetic beauty, the intent is to provide a timeless and awe-inspiring experience for the aim and the audience. Music, as the aesthetic role of the senses, is the unique art revealed by nature. The impressive reviews of scholars continuously inspire. The descriptions of this segment feature that; Centuries ago and centuries later, appearances on the same subject in this examination revealed that they almost reached the same conclusion.

*"Neuroscientists today have learned much about the organizing and structuring processes of neural connections and emotional response systems that influence higher thought processes" [17, p. 51]* We must remember that the words we select are not causes for behaviour; they only begin to specify the types of brain processes we must fathom in order to comprehend behaviour. One reason psychologists became hesitant to use traditional emotional terms was because they could not adequately define most of them. Without brain knowledge, such terms could be defined by behaviour criteria, but the ensuing verbal circles did not really help us predict new behaviours. With the advent of the neuroscience revolution, we can now hone definitions to a finer edge than was ever possible before. For some-even modern psychologists-it may still come as a bit of a surprise that words alone, which can

arouse such intense feelings among people, are not powerful enough to scientifically specify the nature of those feelings. *"Many generations of psychologists who tried to discuss internal processes with folk psychological words found it impossible to agree on essential matters, such as what are we really talking about when we assert that someone did something because they felt this way or that way? It took psychologists some time to realize that the only things they could agree upon scientifically were visually evident empirical observations, such as the latency, speed, frequency, and quality of behaviour actions. For a long time, this made behavioural psychology a highly productive but conceptually conservative and intellectually sterile field (at least to those not initiated into its intricacies)" [18, p. 13].*

Faculty exercises enable us to distinguish musical phrases by our sense of hearing to understand that one composition is superior to another, to distinguish one component from another; this indicates that this is not art. Understanding music as an art (sina'a) that can engage our faculties of sense-perception, imagination (takhayyul), and intellect (aql) emerges as a practice. Aristotle's view that the application of reason requires imagination and that this requires sense-perception (hasasiya) is the essential content of Kitab al Musiqā. Farabi admits that some musicians can copy melodies only with concrete facts. Others may imagine new melodies and express real music without the support of existing conditions. Any description of components that do well for composing and performing melodies presupposes a view of what counts as distinctive features as heard. Farabi determined three purposes of the melody. It discusses the reaching method for these three purposes. The music of the poem and the features of the image draw attention at this point. He argues that there is a strong image on the basis of these features.

Musical sounds, especially instrumental sounds, are not something people can

grasp with more than one sensory method. Therefore, musical sounds are the definition of perceptual, primarily auditory, revelation. This situation particularly paves the way for perceptual cognition and shows that propositional imagery cannot resolve the perceived content consistently with a perceptual structure. *"The melodies that musical instruments produce serve the following purposes: some are created to imitate what can be imitated from complete melodies, others to serve as repetitions (tak-thirat) of these melodies, preludes (iftitahat), endings (maqatic), and interludes (istirahat) between them throughout the imitative process, or to serve as complements to what throats cannot fully express. Other instrumental melodies are created in a way that makes it difficult for them to imitate complete melodies, or they are unable to assist complete melodies in any way. Rather they are like ornamentation that is not made to imitate anything, but rather is created for esthetic reasons only"* [19, p. 68-69].

The issue is, what does this perception process involve, and how does it act? Since both are cognitive, what are the various ways of perception and how does it relate to thinking? Individuals of the mind point to a distinctive feature in terms of perception. Psychophysical experiments created the subjective visual perception of motion to measure the current threshold. The rhythm features of different compositions reach the subject as arousal frequency. Aural impulses reveal random or similar perceptions in the mind; these feelings transform into images.

Al Farabi explained his versatile music comparisons based on physics with universal details. This universal perspective is a great inspiring feature for the researcher. In his commitment to musical endowments, he explained the terms used by experienced listeners to describe tonal music and physical movement. In other words, he does not utter about music but also experiencing musical motion as if shaped by measurable analogues of physical gravity,

magnetism, and inertia. It also presents a theory of melodic expectation based on this claim.

As the aim of action within a magnetic field of musical authorities". Farabi achieves with three prototypical forces of music: - musical gravity -musical magnetism (the tendency of an unbalanced note to move (up or down) from the most approaching settled pitch musical movement. Thus, the model tends to continue in the same direction, similar to Gestalt's law of regular progression.

Balance analysis has a significant influence on music dynamics. The gravity of the mods over the unbalanced sounds is of significant relevance to "modal building". Furthermore, the concept of sound-gravity is central to explain its other musical characteristics. The perception of gravity and rhythm of centuries before and after: *"Breaking down the sense of gravity is a matter of being aware of its presence and mastering it as a force of nature. The process of breaking down and detecting gravity results in rhythm.... This rhythmic process of conquering the sensation of gravity, which was revealed with sound and perceived through sound, is the genuine birth of music The process of realizing gravity, mastering it as an organizing power, is rhythm, which gives shape to the sensation of gravity and its mode; together they form "modal rhythm," which is the essence of musical language"* [20, p. 185-194]. The regular transition between various forms of balance (stability) and imbalance (imbalance) in music is key to understanding the psycho-physiological basis of different structures in art. The gravity reveals with all kinds of art. Painting and architecture (composition balance), choreography are often artistic, linguistic structures, all exist by gravity. In music, similarly, the trend. Music, which is the subject of our analysis, is explained by its effect on mind and body and the profound mystery of perception, including thought, sound, and the law of gravity from the fourth century of the ancient Greek era.

Music evokes various kinds of emotions, and there must be some difference between one piece of music and another, parallel to the variations in emotional responses produced by the various pieces of music. Why a piece of music is happy and differences in sound complexes must ultimately explain other sorrows. The core of our article's first exit question of the journey. What differences exist in the various air vibration complexes to explain specific differences in the listener's experience?

### **Conclusion**

This essay includes the belief in Al Farabi's proof through a combination of analytical methods that there is a best opportunity to illuminate the functioning of his musical compositions. However, Al Farabi's methods as a guide to music analysis are all about autonomous musical structures of our rich, complex and highly heterogeneous musical experiences. Therefore, although we have approached Farabi's great musical treatise with the full belief that we carry it, we would like to mention that it is impossible to reveal his depth to the corresponding extent.

The citations found as analysis is about the structure of the music and the findings of the cognition of the listeners as explained in Farabi's latest treatise, 'Kitab al Musiqā al Kerim'. It is a process that includes auditory, visual, emotional, kinesthetic, linguistic and other areas of experience - they need for notes, composition with notes. Here, the basic structure in question is the concept of embodied cognition and its evidential feature. The action characteristics of cognitive structures appear as repetitive patterns. The reference issue for understanding perception is no more comprehensive instruction but the sensuous experiential disclosure of the perceiver's nervous system.

Scientists think music a kind of perspective illusion in which the human brain imposes structure and order through a se-

ries of sounds. How this composition leads human to understand emotional responses is also part of the mystery of music. The impression of harmony and rhythm, musically and physically, has been the case of particular consistency from philosophers. The knowledge acquired through perception is separate from the mind, as is the case with inspiration. Perceptions and intuited knowledge, however, may be measured ultimately to a reasoning process. Moreover, Farabi infers that knowledge achieved by either of these two forms is made cognizable through experience. In this introduction, as Farabi suggests in *Kitab al Musiqā* with the phrase of an experienced instrument tuner, experience is more than knowledge or skill acquired through repetition. Accordingly, experience is phenomenological and existential. Furthermore, interpreted to include what happened in reality and the transition of an incident.

Farabi mentioned here which analogical thinking arises from uncertainty and connotation, either poetic or symbolic. On the other hand, induction and deduction set the bases for the process of reasoning, whether universal and expressive or fundamental. As with intuition and perception, thinking presents another aspect of imagination. Al Farabi considered correlating sense perception with the intellect. He did so by identifying it during the 10th century with a syllogism in an imperceptible time, a power of investigating the truth without supporting by imagination. Music is a universal language utilized to communicate thoughts, feelings, and moods and arouses the corresponding responses accordingly. The inquiry of similarities as particular systems and relationships in music is an almost infinite field, with an endless variety of subjects and situations. Nevertheless, repetition in its many singularities, and that of structural correspondences, make up just two immense subsets in the universe of attributions within musical similarity. Therefore, this research reveals the essential as-

pects of analysis, music as a self-referential structure and transformative system. Investigation and description of these aspects are the central tasks of this exploration.

### References

1 Farmer, Henry G. *A History of Arabian Music to the XIIIth Century*. London: Luzac, 1929, Chapter VI., pp. 177 - 264.

2 Erlanger Rodolphe de, *La musique arabe* (I), *Al-Fārābī* : Le grand traité de musique ; *Kitābu l-Mūsīqī al-Kābīr*, Livres I et II. Librairie orientaliste Paul Geuthner, Paris 1930 [Institut du monde arabe 2001, Volume I., pp. 37- 202.

3 Engel, Carl. *Musical Instruments*. London: Published for the Committee of Council on Education by Chapman and Hall, Published for the committee of council on education. South Kensington Museum Art Handbooks, Edit by William Maskell. Chapman and Hall Ltd., London.1875, pp. 57,58 - 158.

4 Shiloah, Amnon. *Music in the World of Islam: A Socio-Cultural Study*. Detroit: Wayne State University Press, Print. by Raven Typesetters British Library, Chester and printed in Great Britain by Biddles Ltd, Guildford, 1995, pp. 54-264.

5 Al-Farabi, Abu Nasr Muhammad ibn Muhammad ibn Tarjan, and Gattas Abd al-Malik Jasaba. *Kitab al musiqa al kabir*. Cairo: Arab Writer, 1967, pp. 1169-1183.

6 Wachsmuth, Guenther. *The Etheric Formative Forces in Cosmos, Earth and Man: A Path of Investigation into the World of the Living*. London: Anthroposophical Pub. Co, 1932, pp. 15-245

7 Fārābī and Henry George Farmer. *Al-Farabi's Arabic-Latin Writings on Music in the Ihsa' Al-'Ulum* (Escorial Library, Madrid, No. 646), *De Scientiis* (British Museum, Cott. Ms. Vesp. B.X., and Bibl. Nat., Paris, No. 6298, and Bodleian Library, Oxford, No. 3623), Etc. / the Texts Edited, with Translations and Commentaries, by Henry George Farmer. New York: Hinrichsen Edition, 1965, pp. 49-65

8 Fārābī and Muhsin Mahdi. *Al Farabi's Philosophy of Plato and Aristotle*. [New York]: Free Press of Glencoe, by The Free Press of Glencoe, a Division of The Macmillan Company Printed in the United States of America 1962, pp. 21-153.

9 Friston, K. J. Functional and effective connectivity: a review. *Brain Connect.* 2011;1(1):

pp. 13-36. doi: 10.1089/brain.2011.0008. PMID: 22432952.

10 Fārābī, Dunlop D. M., *Fuṣūl al-madani: aphorisms of the statesman*. Cambridge [England]: University Press, 1961, pp. 89-165.

11 Al-Farabi, Abu Nasr Muhammad ibn Muhammad ibn Tarjan, and Gattas Abd al-Malik Jasaba. *Kitab al musiqa al kabir*. Cairo: Arab Writer, 1967, pp. 47-1183.

12 Leman, M., Lesaffre, M., & Maes, P.-J., Introduction : what is embodied music interaction? In M. Lesaffre, P.-J. Maes, & M. Leman (Eds.), *The Routledge companion to embodied music interaction* New York: Routledge, 2017, pp. 1-10. <https://doi.org/10.4324/9781315621364-1>

13 Gillies, J., *The History of Ancient Greece: Its Colonies and Conquests, from the Earliest Accounts Till the Division of the Macedonian Empire in the East: Including the History of Literature, Philosophy, and the Fine Arts* T. Cadell and W. Davies New York Public Library. 1831, pp. 53-492/

14 Fārābī, and Rescher N., *Al-Fārābī's Short Commentary on Aristotle's Prior Analytics*. Pittsburgh University of Pittsburgh Press, 1963, pp. 128-132. <http://digital.library.pitt.edu/cgi-bin/t/text/>

15 Al-Farabi, Abu Nasr Muhammad ibn Muhammad ibn Tarjan, and Gattas Abd al-Malik Jasaba. *Kitab al musiqa al kabir*. Cairo: Arab Writer, 1967, pp. 50-1183.

16 Krumhansl, Carol. "Music: A Link Between Cognition and Emotion." *Current Directions in Psychological Science* 11 *Current Directions in Psychological Science*, SAGE Publications First Published (2002): 45 - 50 <https://doi.org/10.1111/1467-8721.00165>

17 Panksepp, Jaak. *Affective Neuroscience: The Foundations of Human and Animal Emotions*. New York: Oxford University Press, 1998, pp.13-480.

18 Al-Farabi, Abu Nasr Muhammad ibn Muhammad ibn Tarjan, and Gattas Abd al-Malik Jasaba. *Kitab al musiqa al kabir*. Cairo: Arab Writer, 1967, pp. 68-1183.

19 Yavorsky, B.L. *Basic Elements of Music, in Russian Iskusstvo Yavorskv's Forgotten Hypothesis and a Proposal for an Experiment in Zero Gravity* Galejev (1923) B.M. [http://synesthesia.prometheus.kai.ru/yavorsk\\_e.htm](http://synesthesia.prometheus.kai.ru/yavorsk_e.htm) (1 pp. 185-194) Published in "Leonardo", vol. 26, 1993, N 1, pp.76-78).

### INFORMATION ABOUT AUTHORS

- Gulzhikhan Nurysheva* Doctor of Philosophical Sciences, Professor, Al-Farabi Kazakh National University, Almaty, Kazakhstan, e-mail: gulzhikhan-nurysheva@yandex.ru, ORCID 0000-0001-6640-8111
- Nurfer Tercan* PhD student, Al-Farabi Kazakh National University, Almaty, Kazakhstan, e-mail: nurfer.tercan@gmail.com, nurfer@nursoultan.com, ORCID 0000-0003-3482-4182
- Гүлжихан Нұрышева* философия ғылымдарының докторы, профессор, Әл-Фараби атындағы қазақ ұлттық Университеті, Алматы, Қазақстан, e-mail: gulzhikhan-nurysheva@yandex.ru, ORCID 0000-0001-6640-8111
- Нұрфер Терджан* PhD докторант, Әл-Фараби атындағы қазақ ұлттық университеті, Алматы, Қазақстан. e-mail: nurfer.tercan@gmail.com, nurfer@nursoultan.com, ORCID 0000-0003-3482-4182
- Гүлжихан Нурышева* доктор философских наук, профессор, Казахский национальный университет имени Аль-Фараби, Алматы, Казахстан, e-mail: gulzhikhan-nurysheva@yandex.ru, ORCID 0000-0001-6640-8111
- Нурфер Терджан* PhD докторант, Казахский национальный университет имени Аль-Фараби, Алматы, Казахстан, e-mail: nurfer.tercan@gmail.com, nurfer@nursoultan.com, ORCID 0000-0003-3482-4182