

METHOD, LOGIC, PHILOSOPHY AND SCIENCE IN THE MUSIC OF JOHANN SEBASTIAN BACH AND WOLFGANG AMADEUS MOZART

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Abstract: We identify the “structures” of the method, logic, philosophy and science in the music of Johann Sebastian Bach and Wolfgang Amadeus Mozart. These aspects cannot be found in the dedicated literature or in the philosophico-scientific literature. Our framework starts with fundamental formulae specific to method, logic and philosophy, with consideration of the main characteristics pertaining to the specified fields. We end with some definitions of science, as well as with the global requirements of the latter, which may be applied – following some considerations and seekings – both to Bach’s and to Mozart’s music. Several questions arise in the context, and we suggest research solutions specific to different topics (three reference axes: harmony, counterpoint and melodicity) applicable to Bach’s and Mozart’s music. Some conclusions follow and we remark the constructivity/deconstructivity of some procedures applied by the two composers, which, in fact, are to be found in modern considerations in philosophy².

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A. INTRODUCTORY GENERAL ASPECTS

Johann Sebastian Bach and Wolfgang Amadeus Mozart lived between 1685 – 1750 and 1756 – 1791, respectively, and the first was considered the greatest composer humanity had had till the the present time, while the second was considered the absolute musical genius of humanity. The polyphony of J.S. Bach’s music is remarkable (superimposed melodies, which can be rigorously developed, existing within a well-defined harmonic frame): thus, was crowned the instrumental and vocal synthesis of the preceding period – be it English, Italian, French or German. The classicism of the music of W.A. Mozart implies (an admirable) perfection of the form of the musical discourse: within this framework, numerous nuances are implied, which are present, from the ancient metaphysics and the

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² The concerns of this essay represent an opening required also by the field of methodology, logic, philosophy, as well as of the philosophy of science, which are currently having place within the Division for Logic, Methodology and Philosophy of Science – the Romanian Academy. In an interdisciplinary framework, the current study is useful, as it will supplement the above-mentioned activities, by means of the concerns of the Group for Interdisciplinary Research within the already mentioned academic structure.

inner/outer tragism of the Human Being, towards the joy of children, but also of those who have long passed the age of childhood. Concerning the style, J.S. Bach is primarily characterized by a melodic form called (instrumental or vocal) fugue. The fugue has – as an initial part – a certain musical theme, which is interpreted on a single instrument or a unique voice, then, successively, by the other instruments or voices. Out of this componistic modality results a structure proper to a certain architecture – construction of a perfectly accomplished music; thus, the multitonal exposition is achieved, in fact, the ensemble, the whole of the composition is obtained. From the same point of view, of the style, as concerns W.A. Mozart, we may remark the comic opera, by means of which can be stressed the psychology of some persona in certain given situations (*Così fan tutte*, *Le nozze di Figaro*, *The Magic Flute*, *The Abduction from the Seraglio* and others). Bach also composed sonatas and suites for violin, preludes, piano fugues and suites, variations, toccatas, organ fugues and fantasies, orchestral concerts for piano/violin/flute, vocal concerts, missas, oratorios, cantatas, aras and duets. Mozart also composed symphonies, concerts/sonatas for violin, piano, horn and flute, chamber music, (quintets, quartets and trios), variations, rondos, religious music, missas, motets, cantatas, vocal duets. Bach's music reflects introspectivity, subjectivity, concentration, chromatism, the profound faith in the ancient form of methaphysics; we may remark, in a distinct way, the formal part of his principles concerning the musical construction; however, the latter is mostly liniar. This structure is the dominant characteristic of his musical system (in terms of form), while the emotional part of his music is, in fact, by way of construction, a subsystem of the previous system, which is still determined downward by the latter. On the other hand, with Mozart, it is reflected the fruitful intermingling between the melodic line and the theme: (almost) every time, is stressed the aristocratic way of musical expression, an ontological form existing especially in instrumental music, as well as the methaphysics existing within the theme of the requiems, the ontic aspect of his comic operas. We should remark, along this opuscle, the references to certain significant works of the two great composers, accompanied by the mentioning of their duration, since we have considered, at the same time, some possible auditions of those works (which we are recommending), chosen in a “constructive” and judicious way, since they support our previous statements. At first, we may exemplify the above mentioned aspects by two fragments from “The Goldberg Variations” by Johann Sebastian Bach (interpreted in 1955 by a great piano player, specialized in J.S. Bach's music – the Canadian Glenn Gould), as well as “Ave Verum Corpus” K618, composed by Wolfgang Amadeus Mozart (motet for choir, orchestra and organ, interpreted in 2006 by the choir of “Scuola Corale G. Puccini” in Sassuolo, Italy, accompanied by the “Philharmonic Orchestra Emiliana”, conducted by Francesco Saguatti).

Musical fragment I: 1 (Bach – Glenn Gould) + 2 (Mozart – Scuola Corale)
(2.53 min. + 3.12 min. = 6.5 min.)

We remark, to a large extent, the range of characteristics of the significant musical forms proper to the two great composers. This short introduction and example initiate, in fact, the topic of the current essay, one which is not to be found in the fundamental works of musical critique and philosophy referring to the method, logic,

philosophy and science that can be identified in the music composed by Johann Sebastian Bach and Wolfgang Amadeus Mozart. Follows the analysis of those aspects.

B. METHOD

According to “Vocabulaire technique et critique de la philosophie”, edited under the coordination of the „French Society for Philosophy”, in 1968, pp. 623–624, method represents “a program priorly regulating one of the operations to be achieved and that points out to certain errors to avoid, in the attempt to reach a determined result”. Within the mentioned source, the following question is also worded: “can a method be determined a priori and, irrespective of its application, be priorly formulated in order to serve as a program for some operations which will start only when the method rules have been formulated?...” as well as the allegations + the completion ... “a method represents an object really distinct from its application..., this will always concern the relationship of thinking with a certain “matter”, ,,... we shall make a completion: ... “the direction regularly followed during the thinking operation upon a determined object” (M. Barnes). According to the “Dictionary of History and Philosophy of Science”, coordinated by Dominique Lecourt, Polirom Editions 2009, [1999], p. 950, we read that ... ”method refers to the analysis of the relationship between a given theory and the ensemble of the facts the former is trying to explain; it concerns the justification or the corroborating of the theories with the facts”. A first problem is represented by the way those ideas can be adapted to what is, in fact, representing the method used in the music composed by the two composers. In conformity with “*Dictionnaire des Symboles*”, Editions Robert Laffont, 1982, [1969], Paris, pp. 654–655, “The Pythagoreans also considered **music to be a harmony of numbers and of the cosmos, while the latter itself could be reduced to sounding numbers**. It was giving numbers all the sensible and sensitive **plenitude** of the being. It is to their school that the concept of *music of the spheres* is related. Plato distinguished musical forms adapted for different functions of people in the city”. *Typical cosmos is a magnificent concert. ... the music of man: music organizes man and it is in his inner self that he captures music. Music supposes a concord between soul and body... a harmony of faculties of the soul... and of the constitutive elements of the body*. If music is the *science of modulations* (Varon), of measure, we may conceive that it commands to the order of the cosmos, to human order, to instrumental order. **It will be the art of touching perfection**”. There is a **Bachian symbolistic** in the light of the description in the previous paragraph. For Plato, music generates harmony in Ideas, implying philosophy. In “De musica” Augustin declares that music is developing a correct measure of the connexion between sensitive and intelligible. Profound references to music were also made by Shopenhauer, Hegel, Nietzsche, Stravinsky, Adorno, Jankélévich, Schönberg... Interiority, touching the roots of the Being, pure art, ineffable and poetry, philosophy and formalism, constructivism, abstractionism – those are only some of

the essential attributes of music (especially classic music, but not only...), connexions that these remarkable personalities have considered, in time, concerning such a form of art, first of all, as aesthetic value. In the “*Oxford Dictionary*”, 1998, London, U.K., p. 538, we read: “music – the art of combining vocal or instrumental sounds (or both) to produce **beauty of form, harmony, and expression of emotion**”. The characteristics of authentic music (and not at all of the useless “noises” and perturbations of the Human Being, in some situations, having innumerable psychic implications – as deformed conditions of the normal psychological requirements) are to be also found in the profound and also sublime music composed by Bach and Mozart. Probably their method “is tailored” mostly on the activity of the creating mind, in conformity with what is defined in the “*Oxford Dictionary*”, p. 513: “Method – a special form of procedure esp. in any branch of mental activity”.

We remark among the **fundamental methods**, which characterize the universality of Bach’s music those related to polyphony and the Lutheran chorals. With Bach, those aspects can be found, mainly, in canons and fugues (as methods).

1. **In a canon**: the initial theme is initiated by a single voice, then, at a certain strictly determined interval, it is resumed by the second voice, in the same tonality, and then, observing the same interval, the theme is resumed by the third voice. And so on and so forth, strictly following the direction generated (in the first place) by the melody and (in the second place) by harmony, at only one level (very rarely) or at two or more levels, according to the number of voices that are breaking in. Thus, comes into being a music of great beauty and, at the same time, we should remark the former’s great complexity. There is also the possibility for the main theme to be resumed within different (modular) tonalities having the same velocity or developing with some different velocities (faster or slower than the initial theme is developing), but superposed, generally in an ascending direction. The increase of the complexity is generated also by inverting the theme: a voice follows a descending direction, while the initial theme, that of the first voice, has an ascending direction or vice versa, there are contrary directions: ascendere (II) with descendere (I) (canon “cancricans”) (e.g.: Musical Offering). In this way, a mathematical-like isomorphism is taking place.
2. **In a fugue** the method is (somehow) similar, but this is, however, much more expressive, since the rigour of the canon disappears. In a fugue, at the beginning, the first voice initiates a theme. When the former ends, the second voice is starting, resuming the main theme, while the first voice is resuming its evolution with the secondary theme, which is also in a certain melodic, harmonic, rhythmic contrast with the main theme. The rule disappears only when all the voices meet. In this situation, a significant problem raises, that may be taken into consideration in science, too: is a method implying the absolute existence of a rule or not? If not, then which is the place of the paradigm for the same type of music? The question implies more observation. The fugues I + II in the “**Musical Offering**” (1747 – “*Ricercare*” (acronym: **Regis Iussu Cantio Et Reliqua Canonica Arte Resoluta** = Theme Given by the King’s Command, Resolved According to the Canonic Style (translation after Bach: Davitt

Moroney)/"Canonic Fugue"), don't have the same structure; there is no unique rule in their respective music. All is reunited in what is bearing the name of the "**art of counterpoint**". The raising of modulation, that is the essential characteristic of the "**Musical Offering**", in fact, of the canon "**Canon per Tonos**", on three voices, pertaining to the former, which is coming back, however, after the six changes of tonality, to the initial one (G minor), stable, without any losses generated by the modulation. Bach's creation, with the related methods, is characterized by unity and synthesis. The tradition of building and listening to this form of music has Renaissance origins. Within the Baroque style, in fact, takes place a **symbolistic** having the form identified in Bach's music. Within this frame, an important role is played by 3. "the **melodic recurrence**", situated within some different tonal levels. Generally speaking, the two melodic lines are executed simultaneously; each of them is following its initial line (a method used mainly within the Sonatas and Partitas for violin-solo, e.g. : Mark Lubotsky, Sonatas and Partitas – recordings in Maria Minor Church in Utrecht). **The method used by Bach in "The Art of Fugue"** (1750) (counterpoint variation with a unique theme) can be remarked by the fact that it aims at the complexity (achieved by some counterpoint constraints) of the 14 fugues (Contrapunctus) + 8 component canons, starting with the forms of a medium complexity and directed towards those with a level of complexity which can no longer be (immediately) identified by the Human Being. Thanks to the method he used, the composer "... *introduces us in a quiet and serious world, deserted and rigid, without colour and light, without movement; this world does not draw our attention, however, we cannot escape from its influence*" (Albert Schweitzer, J.S. Bach, New York, Dover Publication Inc., 1966, p. 427). This characteristic is present, however, only within the first four fugues pertaining to "The Art of Fugue". Eventually, we can identify, within this composition, the form of pure music, suddenly interrupted, in fact, the final time of J.S. Bach, the time of his ultimate parting with this world, in the year 1750. Resuming **the method used within the Goldberg Variations** (1741 – the year of their editing), counting thirty of them, whose main theme, called "Air" was presented (interpreted by Glenn Gould), we may remark its constancy, even though the melodies to follow vary, in fact, each of them being a canon (method 1 of building). At the same time, we should remark, as a method, Variation no. 30, where the Quodlibet is introduced, in the place of the ninth canon; this is the song which would accompany the practice of family meetings (with the members of his family) of the composer Johann Sebastian Bach, by means of the same (general) methods, but adapted, he also composed Cantatas, Oratorios, Missas, Passions, Suites, Concerts (Brandenburgic, but not only...), Preludes, Toccatas, Sonatas, instrumental music for organon, harpsichord, flute, piano, violin, viola... *In fact, Bach, by means of the music he built, compared to an ideal architectonic edifice, enriched by force and flexibility, succeeded, by the methods used, to produce greatness and uplifting, both in the ascendent and the descendent direction, delving toward the "depths", of human existence. Reflecting upon Bach's creation, we may consider the necessity of a question and of a possible answer concerning the limit (border line) separating the*

*uncounscious and the conscious, both as concerns J.S. Bach and the rest of the Human Beings. We may exemplify all the aspects mentioned till now by a short fragment from the “Musical Offering”, (Ricercar 6) by Johann Sebastian Bach (a part of the music sent, together with the **Brandenburgic Concert no.2, Partita for violin-solo no.3 (gavotta and rondo), The Well Tempered Clavicord (prelude and fugue no.1)**), into the cosmic space – as a sign of the Earth (Voyager 1 Programme – 1977, USA, existing till 20th November 2018). We should also remark (in the image accompanying the music) the variation of the frequency of sounds, which has the (approximate) aspect of a sinusoid initially related to a unique voice (that of the harpsichord), and gradually – to all the six voices (where the complexity and the beauty of the music touch their maximum point). Johann Sebastian Bach felt all those aspects, in his time, through a perfect organization and geometry/topology of his music.*

Musical fragment II: (Bach – Musical Offering (Ricercar 6) (7.08 min.)

In what follows we shall analyze some aspects existing (or not) in the music of Wolfgang Amadeus Mozart, a celebrated representative of the Vienna clasicissm, together with Haydn. The essential characteristic of Mozart’s music is **form**, its precision; the composer did not found form, but achieved its optimum. In a little extended sound field, there is a real game of musical language, a family of aspects pertaining, in fact, to a unique theme which is developping through expressiveness and concentrated spirit. Form manifested within the oratories, chamber music, cantatas, lieds, compositions with religious themes, symphonies, psalms..., one essential attribute of all those being their **melodicity** contained in the emotion resulted, while harmony remains on a second place. With Mozart, especially in his Symphonies, prevail the **inner feelings**, which may be described quite well by instrumental music. An example is represented by the last but one symphony of Mozart, no. 40, in G minor (first part – Allegro molto). We remark the complexity of human feelings, their contradiction (sorrow-joy/hope-resignation), their translation into music. As Dr. I. Weinberg was remarking, in cooperation with Aurel Stroe, in the essay “Mozart”, 1962, p. 53, the work of this composer has “... a direct communicativity..., accessibility for the large public, a certain way of expressing and unveil the gravest and most complex feelings by means of a sound language full of grace and charm, all those elements making the work of Mozart touch the hearts of the auditors anywhere, any time...”. In this spirit, we “dare” propose to keep silence in order to facilitate reflection and thinking, introspection and analysis of the inner feelings characterizing the soul, followed by the existence of every day entropy. As a **method**, Mozart’s symphony with four distinct parts (Allegro, Andante, Menuet, Allegro) resumes Joseph Haydn’s conception, according to which the old symphonic componence is replaced by two menuets, and the result is a five-part symphony, in a new form, with just one menuet, in four parts, a form that Mozart established. However, his last symphony, no. 41 – Jupiter, is considered to represent a maximum of Mozart’s symphonic creation (1788). In the symphonies, the composer is connecting – is

harmonizing – is putting together the timbres pertaining to the same family of instruments with those pertaining to some heterogenous, totally different families. Within many of his orchestrations, a polyphonic (noticeable) independence is taking place. We may say that, unsimilarly to Bach, who had a great expertise in composing fugues and chorals, Mozart had an expertise in composing symphonic music. The first is deductivist, directed (more) towards the depths of humanity, while the second is inductivist, directed more towards the exterior “spring ups” of music, accompanied by de Sun-Light-Vibration and human feelings, and not in the least directed towards “dark spaces”. J.S.Bach’s “time” followed, in fact, almost one hundred years after his disappearance (1750); he has a future time as compared to the period he lived in, and W.A. Mozart’s “time” has been continuously present, it has accompanied him all over his life. Also as a **method**, in the Serenades (e.g.: Eine kleine Nachtmusik) we should remark certain **contrasts** (the lightful theme + the meditative theme (first part) + the poetic aspect, specific to the floral calm of Nature during the night (second part) + the rustic dance (third part) + the melodic echo of the joy of being (we may also remark Mozart’s **method-art** in building the dialogue between the soloist instrument and the latter. **Did the well-known power of improvisation of Mozart always have a method within a certain spontaneity of creation or was there, in fact, a great intuition of high quality music, intermingled with an absolute necessity, situated on the first level, of its melodicity, as an essentials paradigm? We raise this problem, in fact, since currently, we do not have a clear answer.** The essay “Lettres de Mozart – Encyclopedie de la Musique, Vol. I”, quotes the following sentence of the composer: “... ideas come one after another and here it is a composition fitted to be molded in a form or another... My soul is warming, if I am not disturbed, the idea will grow, I am giving more and more amplitude, more light, more clarity”. The final of Mozart’s existence in this world was, in a way, similar to that of Bach’s: he was writing in his last moments of his existence his last work – “The Requiem” (1791) (where the seventh part is called “Lacrimosa” (Shedding Tears). **Unity**, with Wolfgang Amadeus Mozart, as well as with Johann Sebastian Bach, implied, even in the forms proper to the uncounscious, their full attention focused towards the wanted observance of aesthetic plans (the aesthetic infinity), necessary to music (intelligence of aesthetics), even if they manifested themselves, prioritarily, by means of symmetry (influence of antiquity). Mozart’s music in the drama has a visible aesthetic unity, but also simplicity, existing within the great complexity of human psychology or, maybe, quality through simplicity. Another **method** used by Mozart was that of **chromatic harmony**, which was applied to some quartets, as well as the auxilliary use of cadences. The **method** pertaining to the art of counterpoint, of polyphony, specific to Baroque style, which J. Sebastian Bach discovered and which had also existed prior to him, was used by him with the utmost perfection and ingenuity (e.g.: Symphony no.29). We may conclude, in a first stage, that ideas and melodic inspiration, light and the upsurge of music, formed with Mozart the laws and the methods of the music he composed, together with a major creative equilibrium, to be noticed, especially, between different vocal

and instrumental forms, in a profound interweaving. Mozart found the initial pattern, taken off from the old world musicians, but, within the respective framework he developed melodicity and optimized form, modifying them with ingenuity. To end this chapter, we shall refer to a short example of Symphony no. 40 by Mozart, interpreted by the Philharmonic Orchestra in Berlin conducted by Sir Simon Rattle. The “Joy of Music” of high quality is to be remarked on the face of the conductor.

Musical fragment III: (Mozart – Symphony no. 40, first part – Allegro molto) (3.07 min.)

Up to now we have identified, in our study, a series of fundamental methods in the music composed by Sebastian Bach (in canon, fugue, the art of counterpoint, polyphony, melodic recurrence...) and in the music composed by Amadeus Mozart (through form, melodicity, contrast, dialogue between instrument and orchestra, chromatic harmony...). We consider we may end here the short references to the methods identified in the music of the two great world composers.

C. Logic

This part of our exposure will refer to the logic context of the music of Johann Sebastian Bach and Wolfgang Amadeus Mozart. We alledged that, in music, Bach is mainly deductivist, while, Mozart, in his work, is more inductivist. If we consult “The Oxford Dictionary of Philosophy”, [1994], pp. 232–233, we shall find the following: “**Deductive logic**, where a **conclusion logically comes out from a set of premises**, is different from **inductive logic**, which **studies the way premises can support a conclusion without implying a necessity**. In deductive logic the conclusion cannot be false if premises are true. The aim of logic is rather to explicitate the rules by means of which can be built reasonings, than to study the real reasoning processes used by people, which can or cannot be in conformity with those rules. ... There is not a similarly simple answer in the case of inductive logic, which is, generally, a less vigorous discipline, but its objective will be the discovery of some reasoning ways, so that anyone who trespasses them will have improbable opinions”. According to the same source, at p.234, we read: “The classical theory of models for formal logic, due to Saul Kripke (Doctor Honoris Causa of the University of Bucharest – 2011, logician (contemporary) /mathematician, a.n.) and the Swedish logician Stig Kanger, implies the evaluation of sentences not as being true or false *simpliciter*, but being true or false in “**possible worlds**”, then necessity corresponding to what is true in **all worlds**, and possibility corresponding to what is true in some world”. Here, the idiom “possible world” represents a complete situation of things, with a defined value of truth. This is inferred, in fact, starting from one of Plato’s Ideas (which is being debated), according to which people “build” or “create”, while by means of formalism, there are only certain symbols used in logic. **The possibility of some worlds** represents

here the truth existing only in some of the possible worlds, **not in all possible worlds**. “The possible worlds” as well as “some worlds” are the worlds existing in Bach’s and Mozart’s creations. Taking into consideration that a series of Bach’s and Mozart’s masterpieces were sent into outer space, as (fundamental) earth messages presented to the interstellar space, by means of the USA spaceship – Voyager1, in the year 1977, there is a set of some worlds, part of possible worlds (of all worlds in the Universe) which might understand the ”some world” Earth with its ”truths”. Willard Quine, in his essay “Word and Object” – 1960, was affirming that logic has as an objective “to figure the most general traits of reality”. In such a context, there is a relationship between the (deductive and inductive) **logic of the music of Bach and Mozart** and their effective music. The analysis of the music of the two great composers presupposes the existence of an objective of music, as well as of certain (accepted) rules. The objective, its achievement is done based on the laws of their thinking, with its origin in the nature of the intellect – a generator of the music of the two. Rules (according to Wilhelm Leibniz) represent, in fact, the grammar of the laws of thinking, ideally (in general, impossible to be totally attained); they have to coincide with logic, by the grammatical structure (also used in music), by method (previously analyzed). For Quine, logic represents grammar and truth. Music is a mental construct of the creating minds of Bach and Mozart, it cannot exist independently of them. According to Newton da Costa (*“Classical and Non-classical Logics – an Essay on the Fundamentals of Logic”*, Ed. Tehnică, 2004, [1997], p. 46), “reason” has also the following significance: “discursive thinking faculty in opposition with intuitive thinking”, while “intuition” (“intellectual intuition”), according to the same author and same work (p. 93) implies “contemplation, feeling and spiritual sympathy, religious mysticism, inspiration”. In order to rationally express a music, it is necessary to use a unique logic, that should also be adaptable (the principles of systematization, unicity, conformity to reason). However, currently still, in the analyzed music are identified new esthetic characteristics, even during this period, one of priorities owned and offered by artificial intelligence in music. We have to be aware, however, in a realistic way, of the fact that we might be never able to totally discover these significant “properties” attributed to the music of Bach and Mozart. Bach’s and Mozart’s works have, in a total context, a meaning. What about significance? We know that the significance is related to **form**, while meaning is related to **content**. Are those related to the mental action that was the foundation for the mental construct of their music? There is a relationship, felt in the unconscious or perceived in the conscious, which may be established between the music of the two and the persons who listen to it, a logic of the latter’s relationship with the music of J.S. Bach and W.A. Mozart (not only, strictly an intrinsic logic of their music). In pure logic, Friedrich Ludwig Gottlob Frege created a logic system which is analyzing the logic of relationships. The idea of the relationship was also debated by Gottfried Wilhelm Leibniz ($A \text{ R } B \mid A, B$ – entities, R – relationship between A and B). Information maximum-perceived, in a macrocosmic sense, including in the music of Bach and Mozart, results, in fact, out of the relationships. If those who

listen to the music of the two composers don't have a (special) relationship with their music, the message sent by information will be damaged, since it is not well perceived. It is still possible the (deficient) relationship imposed by the possibilities of the sound reception (especially), a fact which determines that some of the interpreters of high prestige related to the music of the two prominent composers not to accept recordings, but only "live" concerts (Glenn Gould, Radu Lupu, Sergiu Celibidache... and others). For the music of Johann Sebastian Bach, and also of Wolfgang Amadeus Mozart, composed during the period 1700 – 1750, and also afterwards, till Mozart left this world, we may find, in fact, the existence of the triad of the influences of Aristotelian logic, Euclidian considerations and Newtonian thinking, as an epistemologic whole. Between the Euclidian geometry (especially), the Aristotelian logic and the music of Bach and Mozart there are analogies; the latter also are at the basis of Newtonian considerations, in relationship with the same form of geometry. Da Costa was remarking, "... in building logic, the influence of geometry was more significant" (p. 163, the mentioned work). **The laws of classical geometry reunited with those of the Aristotelian logic, marked the thinking of Bach and Mozart when they composed music (to which they contributed with all they thought it fitted their creation).** We remind the name of the Russian logician N.A. Vasiliev (1880–1940), who initiated imaginary logic (similar to non-Euclidian geometry, from the logic point of view, being also similar, as thinking, to a (possible) form of geometry, but different from those) non-Aristotelian, considering, within the respective framework, the existence of the so-called "methalogic laws", pertaining to the human spirit (which cannot be ignored or not considered, but also not much explicitated (and explained)). Also, the same logician introduces the principle of non-contradiction, by means of which he alleges that the laws of logic depend of the structure of the Universe where they are observed, admitting the existence of the exception from the classical logic, which can have a meaning in Universes different from ours (other "worlds", imaginary Universes). When we say that J.S. Bach and W.A. Mozart contributed with "all they thought it fitted for their creation", we think it is useful to consider imaginary logic, too, by its methalogic laws + the principle of non-contradiction (maybe an intuition generated by the unconscious). In fact, Hilary Putnam affirmed that the Universe is governed by a non-classical logic (reality of depths), while classical logic (Aristotelian logic) – which is only a transformation perceived by the Being – exists in the "world" of macrocosmic objects. The lattice related to the quantum structure will change, in this case (current quantum considerations) into a Boole algebra (proper for what we are and what we perceive, as Human Beings, in macrocosm). Kurt Gödel was referring, in fact, to the appearance of the material intuition: (Quantum) Microcosmos → (Classic) Macrocosmos. Bach and Mozart, during their temporary existence on the Earth, were not familiar with those aspects, especially the physical ones, but the latter have always existed as fundamental characteristics of the nature of the Human Being within Nature. Similar to all of us, they had those characteristics, but, maybe, they expressed them better (in the classical sense).

We don't think that they ever had been aware of the source of their inspiration, and such problems represent questions which are still under debate. Probably, inspiration was, in fact, generated by a dialectic related to a superior "level", which is getting ahead us. We conclude that the methods of Bach and Mozart (previously exposed) can be framed, in general, into a binary-type of logic (Aristotelian) which exists, however, on the general background of a non-classic, profound "logic" and of a "source" of inspiration, exactitude (J.S. Bach), improvisation (W.A. Mozart) that go beyond the ordinary possibilities of human explanation. We may consider, once again, at the end of the third chapter of this essay, Canon no. 2 – composed by Johann Sebastian Bach, within the "Musical Offering", as well as Mozart's lied – Wiegenlied (Lullaby), K.350.

Musical fragment IV: 1 (Bach – Musical Offering (Canon 2)) + 2 (Mozart – Wiegenlied (Lullaby), K.350) (0.46 min. + 2.31 min. = 3.17 min.)

D. Philosophy

In what follows, we shall make (some) references to certain notions of theoretical and applied philosophy, identified in the creation of the two composers. For the first stage, we shall analyze the notion of **form** (in philosophy), which, as it is well-known, exists also in music. Arnold Schönberg (1874–1951), in his essay "Style and Idea, G. Salvetti (La nascita del Novecento, EDT Torino, 1991, p. 347)", refers to the idiom "musical philosopher". As the German idealist philosopher Nicolai Hartmann was remarking (Estetica, p. 293) "to find a form represents the secret of creation, which is not limited to a simple process of becoming aware: since the mysterious activity which is developing within the artist is missed by his consciousness, too, and all that he can do "is to wait the moment of illumination", which, however, "does not tell him what is going on within himself and how it works, but only which is the form searched for and how he can attain it in the given case". **The general form of a musical composition**, identified in the works of Bach and Mozart, refers to polyphony (especially with Bach, but also with Mozart), melodicity (prioritarily with Mozart) and harmony. Those are "integrated" within a whole (structure + organization + shaping), having as an objective the "content" of the composition, in fact, the essence of the composer's music. In an underlying context, the form existing with Bach and Mozart can be attached to their symphonies, concerts, chamber music, oratorios, lieds, sonatas... And so on and so forth. Form also represents a characteristic of Plato's fundamental philosophy, an abstract trait (related to the perception of people, in the sensible world (as a model) and transcendent (by means of unicity), as the ideal to be reached, by means of the intellect (Universals). In this direction, the concern of the two composers was to search for the form of their musical creation, perceived in the sensitive world. The process represented, for Mozart, mostly powerful inventivity, fruitful inspiration, generated by his soul condition (maybe, sometimes, a little changing), through which the composer also found the

ideal form, while, for Bach, a delving of his thoughts into his inner Being: thus, he discovered, at a certain moment, also the precise (optimal) form of his compositions. With Bach, the artistic content of music has geometrization/topologization, while with Mozart, there is Form (structure (composition included in a musical genre) + organization (polyphony, melodicality, harmony...) + modelling (interpretation, conducting...)). In Bach's music we perceive, to a great extent, the "matter" of the sound, generated (in a significant proportion) by the polyphonic style, proper to the Baroque period. The "matter" of the sound is different from its "form", specific to Mozart's music. Mozart is considered to be related to classicism in music (together with Haydn and Beethoven), but, sometimes to romanticism (oriented more towards the high spheres of Nature (towards $+\infty$), since music, similar to poetry, is, generally speaking, romantic), unlike Bach, whom we can relate to pure Baroque (1600 – 1750), oriented (prioritarily) towards the depths of the Human Being. Bach is related to "matter", while Mozart is related to "form", but both composers were concerned both with form and with content. Another essential aspect of the music of the two composers may be framed within what is called "**ontologic music**" (existing in itself, with a value of pure existence, univocity) (Aurel Stroe, 2001, "Art of Composition"). We consider that Mozart's music is more ontologic, in Plato's spirit, while Bach's music is mainly ontic, in Heidegger's spirit. We include the following remark: The complexity of the tonalities in Bach's and Mozart's creation can be best included, during this period (contemporary to us) (as the same Aurel Stroe was remarking) within some "**categories of musics**", similar to some **Platonician, Aristotelian and Kantian categories**, and that there are also "**classes of compositions**". Bach's music, as well as Mozart's music, may be included into some distinct musical categories, too. As long as music (analyzed in this opuscle) is also theoretic (not only empiric), stimulating thinking, by means of methods and logic (especially as concerns J.S. Bach), as well as the order of thinking (reducing entropy), it also forms the framework of some philosophic research. Igor Stravinsky (1882–1971) was referring to the fact that "the musical phenomenon is a phenomenon of speculation" of thinking. Can **methamusic** (music of music) be applied to Bach's and to Mozart's creation, similarly to the initial thinking of metaphysics (more than physics – as it is thought/considered by people)? Could a complete, more thorough analysis of the music of the two composers be (optimally) achieved starting from their methamusic, and then, heading towards their music? Certainly, these are possibilities of perspective. In the music of the two, in fact, we may remark that **space is disappearing (less in Bach's creations and more in Mozart's creations), but time is continuously present**. Does the music of the music of Bach and Mozart imply, ultimately, the disappearance of spaces and the persistence of time? We may correlate this with Husserl's **phenomenology**, as long as the "tone" of the music (with Bach) is considered by Husserl to represent more than "melodicality" (with Mozart). Does that **epoché** of Husserl occur (to which Sergiu Celibidache also refers, in his book of **phenomenology of music**, even though he does not call it effectively), even a reduction to the **essence of music (eidetism)**? The language of the analyzed music

is directing us towards a form of logic, a reason for which, we have analyzed in this essay, in the first place, method (musical language), and then, also the logic of the music of the two composers. In this context, Bach's and Mozart's music has connections with philosophy, but also with science, as we shall show. Since in music, and not only..., explanation differs from exemplification, but both form a whole, we shall suggest, in what follows, in addition to some explanations (similar to the previous ones), another two examples from Bach and Mozart. We can remark, in these examples also a possible **hermeneutic interpretation** of Bach's and Mozart's music but, mainly within the relationship composer (Bach and Mozart) – interpreter, as especially remarked in the concertistic activity. They refer to: 1) The choir related to the “St. Matthew Passion” (composition that represents a prodigious reference point of J.S. Bach's music (1729), which, in the XIXth century, when it was interpreted under the Mendelssohn's conductance, constituted the official recognition of Bach's music by humanity (1829) (after about one hundred years), interpreted in a concert held in Köln; 2) The serenade “Eine kleine Nachtmusik” – 1787, second part – Romance-Andante (in translation: “Little Night Serenade” – containing the following parts: I. Allegro; II. Romance-Andante; III. Menuet-Allegretto; IV. Rondo-Allegro – conceived for chord instruments, which can be interpreted as chamber music, too (quartet). In both exemplifications it is necessary to pursue, in the first place, the content (“substance” – existing in Bach's music, but also symbolism, semantics, the timbre of his music (the timbre aura)), as well as the “particular form” (which occurs with Mozart), and, in the second place – the “general form”, the harmony of the two categories of music.

Musical fragment V: 1 (Bach – Choir from “Passions after Mathew”) + 2 (Mozart – “Eine kleine Nachtmusik”, the second part – Andante) (3.06 min. + 4.27 min. = 7.33 min.)

E. Science

We start this part of the analysis with a quotation from the “Dictionary of Philosophy and Logic” – editorial consultant – Antony Flew, 1996, [1979], pp. 330, 331, where we read: “Science does not consist only in making timid generalizations out of big quantities of data, since, with the scientist, collection of data is guided by one or another theoretical interest, and the results he will obtain are not simple inductive extrapolations, but represent explanations, models and theories. In case of the sciences that have had great successes, theories have a cumulative character, in the sense that the new theories not only take over the luggage of remarks that have led to the old one, but also try to keep, as long as possible, something of the old theory. Realism is, probably, most disturbed when the scientific theory makes it impossible “to understand what is happening”, that is to interpret the newly discovered structures by the prism of the previously intelligible models and mechanisms”. By means of the analyzed methods existing

in Johann Sebastian Bach' and Wolfgang Amadeus Mozart's music were selected "the procedures and objectives of a particular discipline, the investigation of the way of organizing the respective discipline" (see the above-mentioned work, the reference to "methodology", p. 228), in this case – the music of the two composers. Out of this reason, we shall resume, briefly, the conclusions in paragraph A. (Method), and analyze to what extent the respective methods can be considered as scientific (can pertain to science). If we refer to the music composed by J.S. Bach, we should remark that his main methods are the following: 1. **Polyphony** (highly advanced); 2. **Technique of counterpoint**; 3. **Melodic recurrence**; 4. **Deductivism**; 5. **Unity**; 6. **Chromatic harmony**. Essentially, the methods identified with W.A. Mozart include aspects such as: 1. **Form**; 2. **Melodicity**; 3. **Contrast**; 4. **Polyphony** (moderated); 5. **Inductivism**; 6. **Unity**; 7. **Chromatic harmony**. There are many more others, auxiliary, proper (exclusively) to the two composers, specific to some special, detailed musical techniques, which do not fit into the object of this essay. Previously, in this opuscle we remarked, additionally, what is to be found both in the Bachian and in the Mozartian creation. We notice the fact that, with both composers, there is a group proper to fundamental rules, stressed by the methods used; the composers had, in fact, a (**strictly**) **controlled musical "experience"**, out of which they inferred, afterwards, some theoretical conclusions, too (a procedure similar to the one used, at other levels, at a maximum proportion, of 100%, in science). The **reproductibility** of those "experiences" manifested itself by a large number of (composed) musical pieces (works), similar in structure. By means of music, they **built** fundamental "problems", and they also formulated and reformulated the latter (deconstruction + reconstruction), but to a small extent. With these two composers, there is a body of ideas which represents a foundation and allows a harmonious development. J.S. Bach and W.A. Mozart never pretended that the music they had composed, by means of its characteristics, represented an "absolute truth"; they were not dogmatic, similar to the situation in science. Their music **has an inner consistency**, it is devoid of contradictions within the same framework, which is proper only to them, but has also, **an outer consistency**, since it is very much characterized by a style which is specific to the two composers, immediately recognizable (their creation is not similar to other musical pieces (works)). Those musics, however, do not meet the fundamental criterion, proper to a scientific experiment: they have the subjectivity specific to the composers who had written it, and not in the least the objectivity required by an experiment in science. The equivalent conditions ("frameworks" of the same music, Bachian or Mozartian) are created exclusively by the two composers (not in the least by others), the results of their music are similar (exclusively the music of each of them), almost always the criterion of reliability (loyalty) is met (they have subjectivity, not objectivity). Standardization, considered necessary, in a local sense, useful in order to ensure the stability of forms of Bach's or Mozart's music, is fully observed, but it cannot exist globally too, since the music of the two composers is unique, unrepeatable, little comparable with other composers' (an exception might be the dyad

Bach–Händel, as a Baroque style, since they were contemporaries (1685–1750), respectively (1685–1759). In the work “Dictionnaire de la Musique”, ed. Larousse, 2005, p. 1105, polyphony is defined as a scientific procedure that “also implies the fact that all the voices have an individual melodic value..., the term is very much employed in ethnomusicology; in classical music, it is used mainly for the periods when the counterpoint had a pre-eminence over harmony, that is for those which had preceded the ongoing basis”. Also, in the same work, there are references to the two significances of “form” (p. 535), generally, one of those is applicable to all “situations” in music, while, in a particular way, it reflects “a sketch of construction upon which is constructed (formatted, a.n.) a given work”. It ensures the logic and coherence of music (Schönberg). Within the same source of documentation, we read further “the discussion of such an idea requires long philosophical debates”. For the “particular direction” of form are remarked: the fugue – specific to Bach, the sonata – specific to Mozart, the rondo... and others. Form, with Mozart, is defined as being free: within it, “are introduced original variables” (p. 536). Melodicity, essentially has a vertical “aspect”, and is generated by accords, which may have a certain succession; they mainly represent harmony. The horizontal “aspect” is remarked by the succession of musical sounds with different levels of frequency, as well as variability in time. There is a profound relationship between form and melodicity. Mozart excelled in both directions; even more, there is the “psychology of form” (Gestalt) characteristic to Mozart. In the light of melodicity, we may notice a certain globalizing psychologic structure existing within his consciousness, by means of a closed musical form, which has no longer a space of absorption for similar techniques. The melodicity of Mozart’s music ensures memorization and identificability, interpreted on instruments, and often re-evoking human voice, as well as the modulations of the latter. Once again, “Dictionnaire de la Musique”, at pp. 628, 629, states: “Therefore, harmony is, in what concerns its rank, **the science** of the relationship among the sounds, including the study of intervals, of their grouping in primary elements (...), then of the layout structure of the latter among them (...)”. “The Art of Counterpoint” implies a scientific character, very much musical sensitiveness; otherwise, without such capabilities, it is not possible to compose several superposed melodies, meant to be listened to at the same time, simultaneously. Bach composed the magnificent tonal “counterpoints”. Light, as an electromagnetic form, implies a simultaneity of expression and a place of existence (particle and wave), similar to the art of counterpoint. accordingly, science becomes art. We suggest, as a possibility, when studying Bach’s and Mozart’s music in an organized way, to introduce a fundamental trihedral angle, specific, as a reference, similarly to the fundamental (however relative) reference for movement, with three axes represented by **H**armony, **C**ounterpoint and **M**elodicity, specific (however) only to the two composers. The “optimal” area will be formed, consequently, by the points for which the three components (**H – C – M**) registers an optimal (well-defined) level that the two intuited and constructed. We end the whole essay with a remarkable example suggested and selected out of the Mozartian creation, named “Menuet”.

Musical fragment VI: 1 (Mozart – “Menuet” (A Song for Christmas Time) (1.54 min.)

Note:

As a corollary of our whole essay, we propose to listen, in perfect silence, be it during reading the text of this opuscle, or perceived as a simple suggestion (music not immediately audible), another renowned Bachian creation, peerlessly interpreted by the Romanian pianist Dinu Lipatti, in his last concert in Besançon (a musical offering), in the year of his premature disappearance (1950). The pianist “had the serenity of Wolfgang Amadeus Mozart” and, “towards the end of his life, the process of interiorization accelerated (similar to Johann Sebastian Bach, a.n.)” (Dragoș Tănăsescu, “Lipatti”, ed. Meridiane, 1965, pp.5–6).

Musical fragment VII: 1 (Bach – “Cantata BMW 147” (Dinu Lipatti) (3.27 min.)

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