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From the desk of Pierre Beaudry

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# SEEING AND HEARING GALACTICTLY

by Pierre Beaudry, 2/26/2011

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"God created and bestowed vision upon us so that we, contemplating the orbits of intelligence in the heavens, might put them to use by applying them to the orbits of our reason, which are related to them."

## Platon, Timaeus.

"Finally, we should add human music, showing how the human mind, shaping our judgment of what we hear, by its natural instinct imitates the Creator by showing delight and approval for the same proportions which have pleased God in the adjustment of the celestial motions."

Kepler, The Harmony of the World.

## 1. WHICH PRINCIPLE DO YOU FOLLOW: FELICITY OR PLEASURE?

In his latest paper, Lyn invited us to solve the following crucial paradox: "How can a principle overcome the damage caused by a series of bad Presidents of the United States?" The only way I think

this question can be answered properly is by internalizing and solving the anomaly that Leibniz had identified in the *principle of Felicity*, otherwise known as the fundamental right of "*Pursuit of Happiness*."

After the Revolutionary War, that right was explicitly introduced into the Bill of Rights (1789) in order to counteract Adam Smith's principle of pleasure and pain. However, the principle of happiness comes with a price. You have to fight for your life to earn it and you have to risk your life for your country to keep it. Schiller called it the sublime principle, in opposition to the tragic principle, because it calls forth the emotion of love of mankind, as was exemplified by Christ at Gethsemane: "Why me?" Study the contradiction between vision and audition in the following expression of the same fundamental emotion expressed by Mozart's *Ave Verum Corpus, K. 618* (1791), and Leonardo da Vinci's *The Virgin of the Rocks*, (1483-86). The point being that Leonardo and Mozart have the same mind. (See Figure 1.)

The best musical representation I have found of this irony is rendered by **Bryn Terfel**, in his delivery of the intention of Mozart's message to the listener as understood to be both painful and joyful at the same time. Terfel expressed the irony of the sublime acceptance of death which can only be realized when mortality is considered from the standpoint of one's immortality. As David Shavin remarked in his report for the LYM Wednesday youth Chorus:

"In the June 1791 "Ave Verum Corpus," Mozart's choice to repeat the opening "Ave" is his bold decision to confront the congregation with the shock over the body of Christ, and the implications of their mortality. In the twinkling of an eye, we go from the relative innocence of the first "Ave" to the life-changing confrontation with the lifeless body. How such a shocking, singular event can be treated in 46 measures, in three to four minutes, is quite a musical accomplishment; but it defines the awesome unity of effect of his composition.

The second "Ave", with the weight of the world now put upon the participants, is set to A-G#-G in the sopranos. There is no official voice change here, but in reality, everything changes, because the person is not the same one singing as a moment before. (Hence, "A-ve, "Oy-ve"!) Simply put, this fourth measure is the underlying tension until dealt with explicitly in measures 39-41 by the basses. Their A-G#-G, on "mortis", now has assimilated the human task of the examination of mortality." (David Shavin, *Ave Verum Analysis Situs*, LaRouche NET, February 5, 2010):

This is a brilliant insight. David's "Ave, "Oyve!" is precisely the back and forth state of mind ambiguity that the singer must express throughout the short three minute Motet, and ultimately resolve the paradox in the final dissonant irony of "in mo-o-o-o-o-ortis examine," which is nothing else but the singer's clinical review and acceptance, before his audience, of his own bodily death examined from the point of view of his projected spiritual immortality.





Paris, Louvre.

London, National Gallery.

Figure 1. Leonardo da Vinci, The Virgin of the Rocks. (1483-86)

On the other hand, the best visual representation of the same irony is expressed by Leonardo da Vinci's duality of *The Virgin of the Rocks (1483-86)*. In his two versions of The Virgin of the Rocks, Leonardo expressed the same fundamental internal fight within the soul between the emotions of the sublime and the tragic. Study especially the light and shadow composition of the two faces of the Virgin, and you will see Leonardo's well-tempered mental register shift go from one face to the other, in your own mind's eye. The portrait on the left shows no pain. The portrait on the right shows no joy. The stereogram view of both of them together shows the presence of joy and pain together. View the two images as a mental stereogram (in your mind's eye) that generates the desired sublime effect. The visual stereogram resolution of the ambiguity between the two faces is only an approximation, here, but look at it as the metaphor of a visual Bel Imago register shift, a visual equivalent to Mozart's Lydian *Ave Verum Corpus,... in mortis examine*!

In order to understand the profound notion that Leonardo had of the Renaissance, the two paintings of *The Virgin of the Rocks* must be located in their proper historical specificity. The reader should know that the painting was commissioned by the Franciscan Brotherhood of the Immaculate Conception of Milan, and the painting was to hang as the altar piece in their private chapel. In 1477, six years before Leonardo started his commission, Mary was declared officially "immaculate" by Pope Sixte IV. However, when the first painting (Paris, Louvre) was finished (c.1484), the Brotherhood freaked out and rejected it, and Leonardo was forced to make a second copy which he finished in 1486. That second version (London, National Gallery) was deemed more acceptable. (See Figure 2.)



**Figure 2.** Leonardo da Vinci, **The Virgin of the Rocks**, (Detail). Examine each face separately, and then, examine them both simultaneously as a stereogram that resolves the dissonance between the two.

Since the irony he had inserted in his first painting was considered unacceptable, Leonardo then decided to do a clinical study of the mental process that the observer is required to go through in order to experiment the axiomatic change between the serene acceptance of Christ's death and the tragic acceptance of his mortality. After all, Mary had to deal with the knowledge that her son was going to be crucified, as the angel is pointing out, so provocatively. Note how the pointing finger of one painting was replaced by the cross in the other. So, Leonardo replicated visually that axiomatic change as a beautiful, but profoundly difficult discovery of principle, only by means of pointing to the mind with the subtlety of lights and shadows! He was very specific about his method when he wrote: "Represent your figures in such action as may be fitted to express what purpose is in their minds; otherwise your art will not be good." (*The Notebooks*, Oxford University Press, 1980, p. 177) What both Mozart and Leonardo have shown is that such axiomatic change can only be produced through appropriate dissonances representing ironic anomalies that must be resolved. The question is: what is the method by means of which such dissonances may be resolved?

It was Leibniz who best identified the method of understanding this axiomatic emotional change, conceptually, when he identified the process as the pursuit of happiness and the outcome of the change as the idea of felicity. I reproduce, here, the short 1694 report in its entirety:

**"VIRTUE** *is the habit of acting in accordance with wisdom*, because it is necessary that practice accompany knowledge, in order that the exercise of good actions become easy, natural, and turn to habits, such that habits become a second nature.

"WISDOM *is the science of Felicity*. This is what we must study above all other things, because nothing is more desirable than Felicity. That is the reason why we must always have our mind on top of the matter we are dealing with, that we always think about the main point, that is, that we often reflect on the intention or the objective to be reached, and that we say to ourselves, from time to time: "What am I doing? What is the purpose of this? Let's get to the main point." Thus, we would avoid wasting time with futilities or whatever becomes futility when we indulge in it for too long.

"FELICITY is a durable state of pleasure and contentment: joy. However, several pleasures, especially the more sensual, cause pains that are much greater and last much longer in their wake, or block greater and longer lasting pleasures. The role of wisdom is to provide us with the true means and the necessary precautions and distinctions to acquire Felicity. We must distinguish between joy and pleasure: one can have joy in the midst of pains; we must also consider that joy is always accompanied with contentment, but it says something more. That is why our joy and our pleasure must not have unpleasant aftermaths and must not plunge us in a greater and longer sadness afterwards. It is that selection of joys and pleasures, and of the means of acquiring them, by avoiding sadness, which represents the science of Felicity. Several pleasures, mainly the more sensual, cause much greater and must longer pains or block access to greater and more durable pleasures. This is why moderation must be advocated. On the other hand, there are pains, which are extremely useful and instructive. Thus, it is in such choices and in the means of obtaining or avoiding them that lay the science of Felicity.

"JOY is the total pleasure, which results from everything that the soul feels simultaneously. This is the reason why one can have joy in the middle of great sufferings; when the pleasures that are felt simultaneously are much greater and much more capable of affecting such pains, or when they are great enough that they are capable of eliminating them, as demonstrated by the case of this Spanish slave who, after having slain the Carthaginian who had killed his master, did not feel any pain, and mocked the torments his executioners had invented for him.

"PLEASURE *is the sentiment of some perfection*, and this pleasure causing perfection can be found not only in ourselves but also in others, elsewhere. For when we become aware of it, this recognition excites some perfection in us, because the representation of perfection is also perfection. This is why it is good to make oneself familiar with objects that have a lot of it. And we must avoid hatred and envy, which block us from discovering pleasure by promoting the good of others, and enjoying it.

"TO LOVE *is to discover pleasure in the Felicity of others*. Thus, it is nothing else but a benevolence, which is disinterested. So, the habit of loving someone else is nothing else but the **BENEVOLANCE** by means of which we want the good of others, not for any profit for us, but because it pleases us by itself, because it is pleasant in itself.

"CHARITY is general benevolence. And JUSTICE is charity in conformity with wisdom. Thus, when we are in the mood of wanting and of doing everything in our power to make everybody happy, we possess charity; and when it is well regulated by wisdom, in a manner such that no one could complain about it, what is produced is the virtue called justice; the which

exists in a manner such that we refrain from doing any harm to someone, without necessity, and we rather do good, as much as possible, but most of all where it is best bestowed in the most perfect, and most agreeable manner. The best way of sensing perfection is through the knowledge of perfections through their reasons.

"There are two sorts of knowledge, that of facts, which is called PERCEPTION, and that of reasons, which we call, INTELLIGENCE. Perception is for particular things, intelligence is for universals and eternal truths. And this is why the knowledge of reasons perfect us forever and makes us bring everything to the final reason of things or to their sovereign cause, that is to say, to the Perfect Being which is the source of all perfections and of all things; in a word, to God, who is the source of Felicity.

"But, the knowledge of facts is like that of streets in a town, which help us while we are in it, but with which we no longer want to burden our memory with, after we have left. However, the pleasure in the knowledge of reasons is much more estimable than the one of learning facts. And the facts that are more important to consider are those, which pertain to things that contribute the most to liberating our minds, so that we can reason justly and act in accordance with reason. Such are the facts the knowledge of which is of service for the ordering of one's life and for the use on one's time; for the practice of virtue; for the care of one's health, because illnesses prevent us from acting and from thinking; for the art of living among other human beings, because of all of external things nothing is more helpful to the Felicity of man than man himself, since we all have the same true interest. Thus, we must profit from their assistance in the knowledge of truth, seek the virtuous and wise men, and, when necessary, try to exercise our patience on others without getting hurt." (G. W. Leibniz, *Textes inédits*, d'après les Manuscrits de la Bibliothèque provinciale de Hanovre, publiés et annotés par Gaston Grua, Tome II, Presses Universitaires de France, 1948, pp. 579- 584. The present **Version B** (1694) is translated and edited by Pierre Beaudry, Leesburg, VA. 4/9/2007.)

It is, therefore by radiating this "*pursuit of happiness*" that one can solve the anomaly of felicity or the painful joy of the sublime. Again, the best instrument to experiment with is the proportionality between reason and power that Leibniz had formulated it in his 1671 Memorandum on Arts and Science, when he said: "All beauty consists in a harmony and proportion; the beauty of minds, or of creatures who possess reason, is a proportion between reason and power, which in this life is also the foundation of the justice, the order, and the merits and even the form of the Republic, that each may understand what he is capable, and be capable of as much as he understands." (Gottfried Wilhelm Leibniz, 1671 Outline of a Memorandum: On the Establishment of a Society In Germany for the Promotion of the Arts and Sciences (1671), quoted from The Political Economy of the American Revolution, EIR, 1995, p. 216.)This is the same political principle which is currently underlying the mass strike movement in every country of the world, and which must now dominate the mass strike process inside of the United States as well. This first section of the report was designed to soften you up. Now comes the hard part.

#### 2. THE PHASE-SPACE OF CHANGE BETWEEN VISION AND HEARING.

When you observe the macro-and-micro-phenomena of a galaxy or of a nebula, you are confronted with the contradictions among the different reading instrumentations, especially those of seeing and of hearing, as Lyn showed many times with the case of Kepler. A close examination of this contradiction reveals also the presence of another anomaly which remains hidden within the proportionality between the macrocosm and the microcosm, on the one hand, and the relationship between the memory of mankind and the memory of the cosmos, on the other. How can such a proportionality of reason and power be construed as an inferential phase-space of change which would account for both the creative powers of mankind and the creative powers of the universe as a whole?



**Figure 3.** "The new Chandra X-Ray Telescope has recorded detailed pictures of the heart of the Crab Nebula, first seen on Earth in the year 1054. Here are pictures of the Crab at x- ray (Chandra), optical (Palomar), infrared (Keck), and radio (VLA) wavelengths." http://www.aip.org/png/html/crabneb.html

Take the visual and the auditory readings of the galactic phenomenon of **Figure 3**: What is the real nebula phase-space of change? Will the real Crab Nebula please step forward? In the case of the Crab Nebula, the anomaly of how the macrocosm of the galactic scale intersects the microcosm of the subatomic scale is not representable by sense-perception. That is also how the paradox between seeing and hearing must be understood. It can only be captured by inferential knowledge, that is, by the sentiment of proportionality. Fortunately, however, we can see and hear as if through a glass darkly.

Scientific reading instruments in physics demonstrate different and contradictory processes to measure the auditory and the visual motions of a solar system within a galaxy. Those two auditory and

visual motions represent mere shadows of how cosmic radiation, for example, is projected throughout the universe. The best way to understand this is to consider that the auditory form of the phenomenon is the wave process, and the visual form is the elliptical process. Each is incomplete without the other. However, put the two processes together and you have a new instrument called an elliptical-wave function.

It was Johannes Kepler who first discovered this anomaly of hearing and seeing at the macroscale level of astrophysics, when he discovered that the ellipse was not enough to salvage the errors that Copernicus and Ptolemy had made in their view of the eccentricity of planetary orbits. It was Leibniz who established the modality of measuring the non-linear discrepancy with his calculus. Four hundred years later, it was Max Plank who recognized a similar anomaly in the contradiction between hearing and seeing in the quantum of action at the micro-scale of sub-atomic physics, and it was Albert Einstein with Louis de Broglie who established the measure which solved the wave and particle paradox with the idea of a relativistic finite yet self-bounded universe. It is the proportionality of those two set of discoveries combined which establishes the proper venue for understanding most of the anomalies which are generated in both macro-and micro-physics and which can also account for the generation of the ironic Lydian Modality found in classical artistic composition of well-tempered Bel Canto music.

However, as Lyn indicated in his paper on *WHAT IS CREATIVITY?*, since the domain of astrophysics requires that you first examine the heavens in a visual form of observation, either directly with your eyes, or by the mediating instrumentation of a telescope, the first result that Kepler noticed was that he had failed to map the phenomenon properly and he noted, clinically, all of the mistakes that his reading instrument was giving him. He realized that, by itself, the elliptic function he was using did not determine the orbital positions that he required for any of the Planets within the Solar system. He realized that what was missing was the higher dimensionality of the galactic determination. In other words, the rate of change of planetary orbits within the solar system could not be explained by mere observation within the solar system! Similarly, the rate of change of planetary action within the solar system could not be found in order to account for a finer tuning of those orbital motions. And, that required the introduction of human creativity as the galactic factor of change!

Thinking in terms of the rate of change requires thinking in galactic terms in the same manner that the implementation of NAWAPA, world-wide requires, an increase in the rate of change in musical thinking on the part of mankind as a whole. As odd as this may sound, it is the creative factor of the Lydian Modality that is required, the same modality expressed by Leonardo, Bach, and Mozart. As Lyn remarked:

"When you come to trying to determine the location, the orbital positions, and the rate of change of the orbital position for the planets within the Solar System, that doesn't work! Aha! Music does!

"Now, music is something which Max Plank, if he were alive today, would insist on saying, is actually the same thing as Plank's approach to the quantum. What's that? That's the function of hearing, isn't it?" (Lyndon LaRouche, *WHAT IS CREATIVITY?* Sapienza University Seminar, June 19, 2008.)

Now, what is required to understand the mental phase-space of change between vision and hearing? In order to answer that question, you must put aside sense-perception as the dominant feature of your thinking. That is to say, you must get Aristotle out of your head, and put him in a cage, somewhere in the back of the room, so you can watch him from the corner of your eye, either for the purpose of clinical study or to remind children of the mistakes and traps to be avoided. Do not ignore sense-perceptions; on the contrary, use both hearing and vision to the maximum, but simply do not let them dominate your thinking and cloud your judgment.

Furthermore, ask yourself another question: What is the dominating emotion that is necessary to have in order to establish the scientific experiment that is suited for developing the mental phase-space of change between hearing and vision? That emotion is the sublime, because that is the only anti-entropic emotion that can do the job. What is the musical modality that is best suited for the galactic domain and for the sublime? It is the Lydian modality. Why? Because, only a fine tuned Lydian modality is capable of reading the messages from the galactic domain which integrate both the astrophysical scale and the microphysical scale into one. Moreover, it is only the Lydian modality that can elevate your mind to the level of required Abelian functions, because you are using anti-entropic change as the new measuring rod in the universe. Last but not least, don't forget that the galactic domain also integrates the memory of mankind and the memory of the universe as a whole, and that is why the galaxy can be treated as a memory modular elliptical-wave function. Now, let's have a look at how this new musical instrument is constructed. (See **Figure 2**)



**Figure 2.** The Lydian modality of J. S. Bach's well-tempered musical system represented by the condensation of six dodecahedrons. The visual and hearing effects are expressed by an elliptical-wave function of seventy-two tone-intervals reflecting the complete six-octave of the piano keyboard.

A simple expression of how the process of an elliptical-wave function may be represented is with the generation of the principle of Lydian Modality that J.S. Bach developed extensively in the preludes and fugues of his *Well-Tempered Clavier*. The general process of the Lydian Modality can be easily represented by the two motions of a Torus, one acting at right angle to each other, within a unified process of change.

**Figure 2** Shows how a closed elliptical-wave system is the appropriate shadow pathway of that Lydian Modality, which is actually radiated by a Bel Canto register shift process of change among the six human voices. In this case, the whole system is generated from the dissonant register shift between **F** and **F#**. The point is that it is the register shift of such a Lydian Modality which establishes the well-tempered scale of the musical system and not the cycle of fifths as people are told falsely.

This is a crucial point. It is important to note that it is not the cycle of fifths which generates the scale, because that would be putting the cart before the horse. It is the opposite that is demonstrably true. It is the register shift of the Lydian Modality which generates both the cycle of fifths and the scale, as well as all of the changes in key signature of the well-tempered system. The cycle of fifths and the scale are not the causes but merely mnemonic effects that result from the Poloidal/Toroidal action of the Lydian well-tempered system as a whole. In that sense, the Lydian Modality reflects the higher dimensionality of the Galactic domain.

However, this process of generation cannot be understood without a new form of measurement based on man's creativity as a change factor in the universe. You can demonstrate this by doing the following exercise on a keyboard. [Show, if possible, the musical score generating the cycle of every second fifth starting from the two Lydian series of **F-Ab-B-D** and **F#-A-C-Eb**.] There is a principle of composition hidden, here, which can only be grasped by the sentiment of proportionality. Here is the visual of your hearing.

This **C-Eb-F#-A-C** Lydian-elliptical-wave (**Figure 2**) represents one of three elliptical-waves of the Lydian Modality which are the three sets of self-generating elliptical sections governing the entire well-tempered musical system of J. S. Bach. Note that the Poloidal action generates the musical scale intervals, while the Toroidal action generates the complete piano keyboard. The P/T ratio of that Piano-Torus is 7/12.

This method of understanding musical intervals requires that you think of music as a finite and unbounded universe of unresolved intervals of action that need to be completed by progressive key changes from those quadratic elliptical-waves. Everything in that universe that is unresolved must be **condensed** like a tetrahedron with four intervals of three, while everything that needs to be resolved must be **extended** into intervals of four, three and five, or three, four, and five like in triangles, squares, and pentagons that form the octahedron, the cube, the icosahedron, and the dodecahedron. With this knowledge of proportional expressed in elliptical-wave intervals only, you can make any lawful change of key signatures that you wish to create within the well-tempered system.

For example, take the **C-Eb-F#-A-C** Lydian-elliptical-wave which divides the octave into four intervals of four minor thirds. One minor third is measured by the interval of one half rotation of a poloidal cycle. This sets you up in an unresolved state of suspension, because the final interval of **A-C** requires being resolved by extensions upscale or downscale into **C#**. In turn, the same Lydian treatment

applied to the lower ending interval of **F#-A**, must be resolved into **Bb**, as the preceding ending interval of **Eb-F#** must resolve itself into **G**, as **C-Eb** must become **E**. Thus, the unsettled and unresolved Lydian minor thirds proportionality always requires ending in the next half-tone interval up or down. The inverse of that process is also true.

With this first process, you can generate the four major and minor keys of **C#, E, G, and Bb** which become the next Lydian elliptic wave to generate new key changes. Therefore, this second elliptical-wave of **C#-E-G-Bb-C#** generates the four other key signatures of **D, F, Ab, and B,** which, in turn, will generate the key signatures of the first Lydian elliptical-wave **C-Eb-F#-A-C**. Thus, like biquadratic residues, all three Lydian elliptical-waves generate changes in all key signatures, major or minor, and form reciprocal well-ordered clusters generating one another. Similarly, the Icosahedron is self-generated by reciprocal tetrahedrons within the dodecahedron. Therein lays the secret of Fusion power, as the Chicago nuclear physicist, Dr. Robert Moon, related it to me in 1986, when he said: "Fusion is generated when tiny little trapped dodecahedrons are attempting to escape from one another." That has been music to my ears ever since!

### 2. CREATIVITY IN THE GALAXY.

How do you conceive of a discovery of principle pertaining to the galaxy? How do you integrate the galaxy of your visual apparatus and your hearing instruments? This question presupposes another question, which is: how do you locate the experience of creativity between mind and galaxy? One way is to relate your mind to the galaxy and the galaxy to your mind by treating them both at the same level of energy-flux density. This requires that you first approach the question in a negative manner; that is, when you discover something which pertains to a higher state of existence that cannot be explained within the solar system alone. This is what Kepler inferred when he noted that closed conical elliptic functions could not be understood from the standpoint of the Solar System alone. He understood that this required the thought-experiment of a doubly-connected anti-entropic manifold in which both the galaxy and the mind would function in the same general form of analysis situs. So, follow that lead, but don't compare your mind and a galaxy in any formal visual manner. What they have in common is not a formal likeness; it is a dynamic likeness. That is to say, the likeness of what is best represented by the creative process of a memory modular elliptical-wave function in the process of timereversal.

In other words, what you are comparing is an inferential analog between galaxy and mind that is expressed by the timereversal of something that is extracted simultaneously from the memory of mankind and from the memory of the cosmos as a whole, which radiates throughout the universe simultaneously, that is without pairwise relations or reactions. This thought-experiment is a special sort of exercise in the simultaneity of eternity relating proportionately the intelligence in the heavens and the orbits of your mind. This is why when you think of an early discovery of mankind, for example, and you think of your observation of the heavens at the same time, you cannot miss but discovering that the *Geistesmassen* you are creating is not something that is "present" before you, but, rather, which resides in a timereversed modality in both cases; and the case of the galaxy represents a past that is millions of light years older

than the entire span of life of humanity. Don't forget that when you are observing the night sky, you are observing the past!

While making such an experiment, you must realize that you are observing timereversal in the test tube of your mind as in the simultaneity of physical eternity. There is nothing punctually present in your observation at all, except what flows from the future to the past and back to the future, and that the moment of your observation could be any spacetime event at some future time which is engaged in an array of relatively past events in the cosmos, at different spacetime distances from your observation, and from one another. From that vantage point, you are presently in the future, and that is where you want to be. At no time are you in the present.

Moreover, you must consider that the nature of those relative spacetime events are encapsulated in both the future and the past at the same time, as in the *School of Athens* of Raphael, and that the proper geometry for them is the Riemannian geometry of the torus. These inversed spacetime events are in the past because they are aimed at changing the future, and they are in the future, because the past can only be viewed as changed, that is as no longer what it used to be. Consider that this is the state your mind has to be in when you observe the heavens, and then you are properly located in the future. The irony is that such relativistic spacetime represents the galactic domain as something that exists and does not exist at the same time. It is a sort of simultaneous state of change of "*becoming what was yet to be.*"

You can demonstrate that process by identifying it as something which could not happen, or is not suppose to happen, but which actually does occur as an anomaly within the ambiguity of the double motion which is a product of both your memory and your imagination, your vision and your hearing. Thus, you have caused a change in the chemistry of your own thinking process by freeing yourself from sense-perception and by constructing an idea of universal becoming uniquely in the domain of the mind as a mirror of the process of change within the galaxy. Consider also that the anti-entropy of living processes goes through a similar change in its chemistry, but without realizing it. You can demonstrate that by showing how life can cause a change between what is merely a perception and what you know has gone through an axiomatic change of the Biosphere, as if you had gone through cosmic radiation yourself.

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