



*From the desk of Pierre Beaudry*



# LYDIAN SINGULARITIES OF GALACTIC THINKING

By Pierre Beaudry, 3/25/2011  
A birthday special



*“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.”*

Plato, *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*.

*“Your mind, not your sense-perception, must become the laboratory test tube of the universe.”*

Dehors Debonneheure.

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

In his latest paper, [A Reflection on Charles de Gaulle: 'A Europe of The Nations'](#), EIR, March 11, 2011, Lyn invited us to solve the following dilemma: "How can a principle overcome the damage caused by a series of bad Presidents of the United States since the death of J. F. Kennedy?" One way to approach that question is by internalizing and solving the anomaly that Leibniz had identified in his *principle of Felicity*, otherwise known as the fundamental human right of the "*Pursuit of Happiness*." But, you might ask: what does that have to do with Lydian singularities? And what do these singularities have to do with the Galaxy? Well, the answer is: everything, because, the issue is how do you resolve a moral dissonance? How do you right a wrong?

Leibniz's principle of felicity was explicitly imbedded into the American Bill of Rights (1789) counteracting Adam Smith's principle of pleasure and pain. It is the principle of felicity that has kept America alive for over two hundred years, and it is the ignorance of this moral principle among our people that could kill this great nation of ours. The complementary question to Lyn's question could be: "What is the required emotion that is needed in order to overcome the damage caused by the series of bad Presidents of the United States?" Frederick Schiller called this emotion the sublime, in opposition to the tragic, because it calls forth the fostering of love of mankind, as was exemplified by Christ at Gethsemane. The question has to become: "**Why me?**"

Lydian singularities are essential to the principle of Felicity for the same reason that they are essential for the study of cosmic radiation, because, in both cases, they are dealing with the future of mankind. Lydian singularities express the same sort of timereversal change to improve mankind as do cosmic radiation showers coming from the future to change the past. Similarly, they are capable of solving paradoxes displayed by the contradictions between vision and audition, because both are dependent on the sublime. The contradictions between vision and hearing found in the domain of cosmic radiation are axiomatically the same as those of the Lydian modality of artistic composition found, for instance, in Amadeus Wolfgang Mozart's *Ave Verum Corpus, K. 618* (1791), and in Leonardo da Vinci's *The Virgin of the Rocks*, (1483-86). The point is that both Leonardo and Mozart understood that their creative minds could only develop by way of solving the paradoxes of the sublime.

The best interpretation I have found of the *Ave Verum Corpus* 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 own immortality. This is the point that David Shavin made in his report for the LYM Wednesday youth Chorus, when he said:

"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*, LaRoucheNET, February 5, 2010):

David's insight into "*A-ve, 'Oyve!'*" is precisely the ambiguous state of mind that the singer must express throughout the short three-and-a-half minute motet, and ultimately resolve the tragic paradox of pleasure and pain with the appropriate effect in the final dissonant irony of "*in mo-o-o-o-ortis examine*," which is the singer's clinical review and acceptance, before his audience, of his own bodily death, examined from the ironic point of view of his higher spiritual immortality.



Paris, Louvre.



London, National Gallery.

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

A 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 of 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 face of Mary on the left shows no pain. The face of Mary on the right shows no joy. A stereogram

view of both of them together shows the presence of joy and pain fused together into one. The two images viewed as a mental stereogram (in your mind's eye) generate 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 mental Bel Imago Dei register shift, a mental equivalent of Mozart's Lydian "... *in mortis examine!*"



**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.

The historical specificity of this unique experiment is essential for the understanding of this painting. *The Virgin of the Rocks* was commissioned by the Franciscan Brotherhood of the Immaculate Conception in Milan, to hang as the altar piece in their private chapel. In 1477, six years before Leonardo started this commission, Mary was declared officially "immaculate" by Pope Sixte IV, which put a temporary damper to the deadly fights over that issue between the Franciscans and the Dominicans, from Rome to Ireland. However, when the first painting (Paris, Louvre) was finished (c.1484), the Franciscans 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.**) The Brotherhood rejected Leonardo's masterpiece because the pointing angel staring at the spectator was considered unacceptable. The Franciscans argued that the angel was *irreligious and distracting for the spectator who would not understand why it took the attention away from Mary*. (Leonardo Da Vinci, *Tout l'œuvre peint de Leonard de Vinci*, Les Classiques de L'Art, Flammarion, 1968.)

Since the irony he had inserted in his first painting was considered unpopular, 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 one's own death and the tragic rejection of one's own mortality. Such was Leonardo's idea of a Renaissance. The subject of this painting is not Mary, as such, but this mental process of axiomatic change. The monks were made to concentrate

on the fact that Mary had to deal with the fact that her own flesh and blood was going to be crucified, as the angel is pointing out, so painfully. The angel is also pointing out to the viewer that we too are mortal, yet, that we each have a Christ-like task to seek immortality by also answering the Gethsemane question: “*Why me?*” Note how Leonardo replaced the pointing finger of the angel in one painting, with a cross on John the Baptist’s shoulder in the second painting. The Franciscans were less disturbed by some symbolic sign than by an ironic interjection, and deemed this a more acceptable anticipation of the crucifixion of the child Jesus. It was Pope John Paul II who best expressed this irony by correcting the failure of that fundamentalist view of the original sin with his now famous paradox of “*felix culpa*” (the happy fault).

However, by pointing to the mind with the subtlety of lights and shadows, Leonardo replicated visually that axiomatic change as the beautiful expression of a difficult, but profound discovery of principle. Leonardo treated his characters with a well-tempered Lydian method of composition that he identified in the following manner: “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, respectively, is that such an existential axiomatic change from the tragic to the sublime can only be produced through appropriate tensions in dissonances, representing ironic anomalies and discontinuities that must be resolved by elevating the spectator to a higher state of existence. The question, therefore, becomes: what is the conception underlying those singularities, and how can such dissonances become resolved? Although the “how” is more of a personal matter of individual creativity, the “what” has more of a social character.

Leibniz conceptualized the nature of this axiomatic emotional change, when he identified the process of going through such necessary suffering, as in the pursuit of happiness, before attaining the state of felicity. I reproduce in its entirety, here, what might be the only English translation of Leibniz’s short 1694 report on this subject:

“**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, such 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 much 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 lies 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 the 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 us, 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 one 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 reason perfects 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)** was translated and edited by Pierre Beaudry, Leesburg, VA. 4/9/2007.)

It is by radiating this "*pursuit of happiness*" that one can solve the anomaly of felicity, or what can be called the transitional painful joy of the sublime. Again, the principle to be adduced in this case is the principle of a tense proportionality between reason and power that Leibniz had formulated 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.)

## **2. THE LYDIAN MODALITY OF THE SUBLIME.**

The dominating emotion that is necessary to foster, in order to establish the scientific experiment that is suited for developing the mental phase-space of change between hearing and vision, is the emotion of the sublime, because that is the only anti-entropic emotion that can connect you to the future by correcting the past. The musical modality that is best suited for unifying and tuning science and artistic composition, in the process of raising humanity to the level of the sublime, is the Lydian modality. Why? Because, only a fine-tuned Lydian modality, as Bach developed, is capable of reading the messages from the galactic domain which integrate both the astrophysical scale and the microphysical scale with the same method. Moreover, it is only the Lydian modality that can elevate your mind to the level of the required Abelian function, because you are using anti-entropic change as the new measuring rod in the universe. This means that such Abelian functions are not only used for correlating physical states, but also for integrating epistemological states of artistic composition as well. Last but not least, don't forget that the galactic domain must also integrate 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 Lydian vision-hearing process can be constructed musically. (See **Figure 4**)

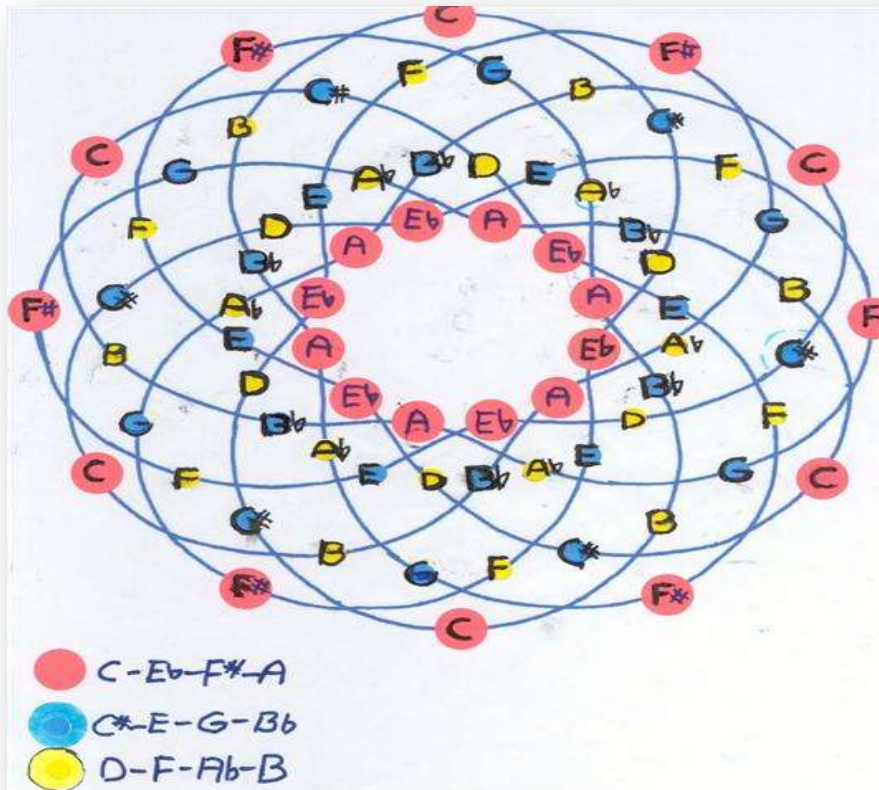




**Figure 3.** J. S. Bach, Prelude 1, C Major. The three self-generating Lydian modular clusters of the Well-Tempered Clavier located in measures 12, 14, and 22. The blue generates the yellow, the yellow generates the red, and the red generates the blue; thus, the whole system generates and tunes itself in that order. This anti-entropic ordering is not reversible.

A simple way of showing how the Lydian Modality that J.S. Bach developed throughout the preludes and fugues of his *Well-Tempered Clavier* are generated is with the process of an elliptical-wave function. The general process of the Lydian Modality can be easily represented by the dual motion of a torus, one motion acting at right angle to the other, within a unified process of change between the visual and the hearing. Take the [Prelude 1, in C Major](#) as an example. There are three, and only three, well-ordered Lydian clusters that reflect the self-generating and tuning process of the whole well-tempered system. They appear in measures 12, 14, and 22. (**Figure 3**) They make you appear to be going down while you are actually going up, and the secret of their measure of change resides in the creative ability of Bach to increase and decrease the tension of their intervals in order to generate change, as he is moving forward creating new ideas. This is the same thematic modality that Bach used as a compositional motif for the Ricercare theme of the Musical Offering, which Mozart used for his Fantasy Sonata, K. 475, and that Beethoven further developed in his *Sonata quasi una Fantasia*, No. 14 in C Sharp Minor, Op. 27, No. 2, the miscalled “Moonlight Sonata.” This musical relationship between composers is precisely the sort of silent communication that Lyn refers to when he talks about the meeting of several like-minds, glancing at each other in the simultaneity of eternity, within the upward progress of mankind.





**Figure 4.** The self-generated Lydian modality of J. S. Bach's well-tempered musical system represented as an elliptical-wave function of seventy-two tone-intervals reflecting the complete six-octaves of the piano keyboard. The red **C-Eb-F#-A** Lydian cluster of intervals generates the blue **C#-E-G-Bb** cluster, which generates the yellow **D-F-Ab-B** cluster, which, in turn, generates the red **C-Eb-F#-A** cluster, and not the other way around.

Now, construct the Lydian well-tempered system as a Riemannian visual and harmonic manifold. (**Figure 4**) The following analysis situs construction shows how the Lydian division of the well-tempered system corresponds to the higher geometry of the torus. Generate the octave series of **C-Eb-F#-A-C** as an elliptical-wave inside of a torus. This represents the first of three elliptical-waves of the Lydian Modality which are the three sets of self-generating elliptical-changing-motions governing the entire well-tempered musical system of J. S. Bach. Note that the Poloidal action generates the twelve interval musical scale of two waves for each, while the Toroidal action generates the complete piano keyboard of six octaves, as a closed but unbound system. The P/T ratio of this new instrument, the Torus Piano Clavier, is 7/12. The first **C----F#** Lydian interval establishes the external boundary limits, while the other **Eb----A** Lydian interval establishes the internal boundary limits of the dynamic system. All of the other musical intervals of the well-tempered system can be shown to be well-ordered in the same manner, within those boundary conditions.

With this first elliptical-wave process in mind, 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 and

singularities. This second elliptical-wave of **C#-E-G-Bb-C#**, which is not shown here but which is the same as the former, 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 **Eb-F#-A-C-Eb**. Thus, like biquadratic residues, all three Lydian elliptical-wave clusters form a finite, but unbound universe, generating within itself changes in all key signatures, major or minor. Thus, the system is entirely self-generating and self-motivated. This is the closest you can get to image the harmonic self-reflective functioning of mind in the universe as a whole. Similarly, for the visual domain, an Icosahedron is self-generated by reciprocal tetrahedrons within the dodecahedral structure of physical space-time, as Plato hypothesized in his *Timaeus*. Therein lies the secret of Fusion power, as nuclear physicist, Dr. Robert Moon, related it to me back in 1986, when he said: “Fusion is generated when Deuterium and Tritium waves are trapped inside of tiny little dodecahedral clusters, and when they attempt to escape the web they are confined into by rotating at a very high speed.” That has been music to my mind ever since.

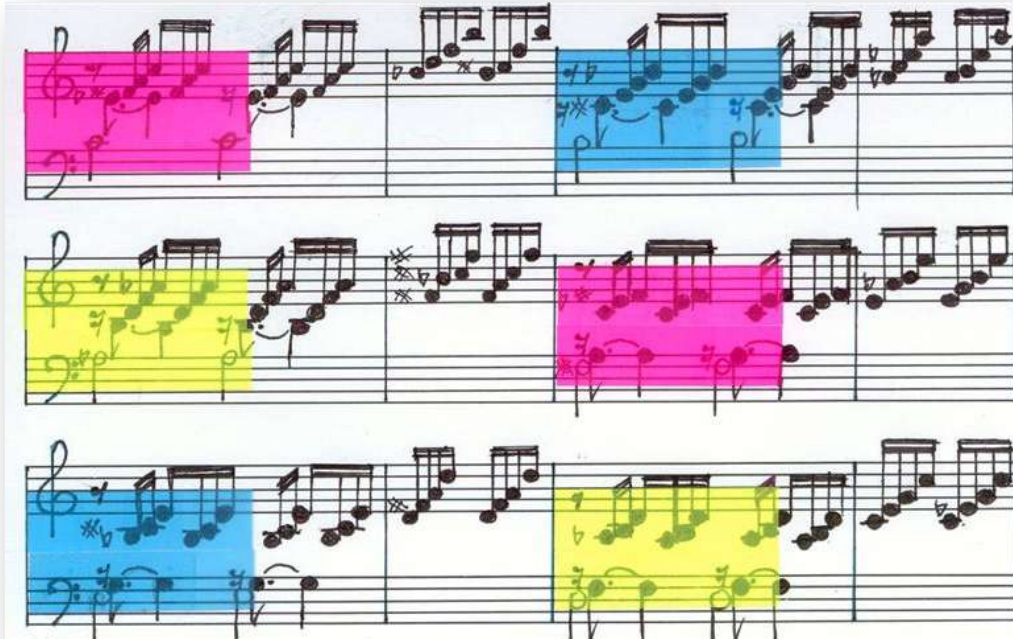
As if you were dealing with a subjunctive universe that is finite yet not bounded, like in the magnetic field of a galactic system, **Figure 4** shows how the elliptical-wave system of a torus is the appropriate shadow pathway of such a Lydian Modality, which, in order to be completed, would require to be punctuated by a Bel Canto register shift process of change among the six human voices. This is known to be demonstrated from the Lydian dissonant soprano register shift located between **F** and **F#**.

Because they both divide the octave of **C** in half, **F** and **F#** divide the cycle of fifths into two equal parts. This corresponds to the primary Lydian division. The point is that it is the soprano 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 in music school. As Lyn demonstrated many times, it is the voice which determines the scale and not the scale which determined the voice.

This is a crucial irreversible process to understand. It is important to note that it is not the cycle of fifths which generates the scale, because that would represent pseudo-causality, like putting the cart before the horses. It is the opposite that is demonstrably true. It is the register shift of the Lydian Modality which generates the cycle of fifths and the scale, as well as all of the changes of key signature, major and minor, of the well-tempered system. The cycle of fifths is but an effect that results from the Poloidal/Toroidal action of the Lydian well-tempered voice system as a whole. However, this process of generation cannot be understood without a form of measurement that has been ignored for too long and which is based on the creativity of man as the primary factor of change in the universe. You can demonstrate this by piercing through the shadows of the following simple exercise, and then go outside of mathematics into physics to prove it, as Riemann recommended.

Generate the inversion of half of every second fifth in the cycle of fifths on your keyboard, starting from the Lydian cluster of **F#**. (**Figure 5**) The other half of the cycle of fifths can be generated, in the same manner, by starting with the Lydian cluster of **F**. The combination of the two processes generates the whole system. Imagine the dense dissonance between **F** and **F#** generating the four less dissonant intervals between minor thirds whose dissonance, in turn, get resolved by generating a consonant system of twelve major and twelve minor keys. The following exercise is deliberately modeled on Bach's Prelude 1, in C Major, in order to show the underlying process that Bach used to generate those changes internally. Start the process starts from a complete state of unresolved dissonances of minor

thirds between **C-Eb-F#-A-C**. Each of the three clusters is required to be activated four times in order to complete the whole system.



**Figure 5.** The reciprocal solution of the self-generating process of well-tempering. The **C-Eb-F#-A-C** Lydian cluster generating other Lydian clusters through the major and minor key changes of **Bb**, **Ab**, **F#**, **E**, **D**, and **C**. The other half of the scale, that is, **Eb**, **C#**, **B**, **A**, **G**, and **F** can be generated through the **F-Ab-B-D-F** Lydian cluster.

In fact, it's just a very small interval of action that makes the whole difference. Take the **C-Eb-F#-A-C** 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 and one tone is measured by one interval of action inside of that wave of twelve intervals. This may appear to you very formal, dry, and devoid of musical content, but don't be fooled by your first impression. This torturous exercise is aimed at setting you up in an unresolved state of suspension where, for example, the minimal Lydian interval of **C-Eb** must be resolved into **E**, **Eb-F#** must be resolved into **G**, while the interval of **F#-A** must be resolved into **Bb**, and **A-C** into **C#**. Thus, this single unsettled and unresolved tonal proportionality of Lydian minor thirds always requires ending in the next half-tone interval up. That very small difference, which sings false, is the difficult but right thing to listen for and to correct. As Lyn put it: "It's not a deduction from instruments that'll give you a principle. It's the act of *insight* by the human mind, which turns an inconsequential, but highly contradictory mess of details into the idea of a concept. That is, you find a *unique point*, in thought -- a unique point in thought -- not in mathematics, a *unique point in thought*, where these things get resolved. And you eliminate all falseness." (Lyndon LaRouche, MORNING BRIEFING, Wednesday, March 9, 2011) Now, get out of mathematics and into the physics of this process.

Such a point can best be exemplified by the extraordinary Lydian singularity that the French musician, Charles Gounod, introduced in his *Ave Maria*, in commemoration of the death of Fanny and Felix Mendelssohn, in 1859. As if it were an echo of Mozart's *Ave Verum Corpus*, this "prayer" exemplifies perfectly the "act of *insight*" that Lyn refers to, as a "*unique point in thought*" which uses a Lydian dissonance to create a transformation in the depths of the human soul.

It was not only Felix Mendelssohn who revived Bach during the nineteenth century, but it was Fanny Mendelssohn Hensel, personally, who introduced J. S. Bach to Charles Gounod. Aside from the *Ave Verum Corpus* finale of "*in mortis examine...*," I know of no greater musical singularity expressing the thought of passing from personal mortality to immortality than what Gounod composed in this unique dialogue with J. S. Bach's Prelude No. 1 in C Major. There could not have been a greater demonstration of love for the deceased Mendelssohns, who had brought Bach out from oblivion, than for Gounod to create this musical funeral memorial to his two friends by emphasizing the singularity of "*in hora mortis nostrae*" (at the hour of our death), with a forceful application of the Bach Lydian clusters they were so familiar with, and which I have identified above at measures 12, 14, and 22 of the Bach score. (**Figure 3**)

It is with those crucial dissonances that Gounod expressed the highest awareness of his "*unique point of insight*" by lifting the sublime potential that lay dormant in the first prelude of Bach, and that Cecilia Bartoli rendered with exceptional clarity in the above YouTube recording. In this way, Gounod was able to change the past from the future. When sung appropriately, the highest expression of Gounod's emotion of mourning comes through in the form of a most powerful lamentation, urging Mary's intervention by calling her name three times, as he presses on "*incalzando*" through the Lydian clusters, and finally culminating in a crescendo at the high C register shift singularity of the "*in hora mortis nostrae*," where the greatest pain becomes transformed into the most peaceful joy of accepting death.

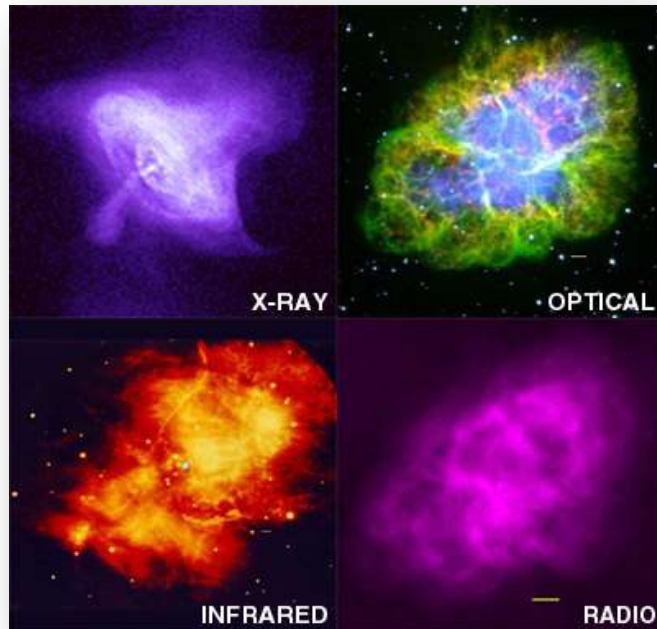
This correlation is not an accident, because, like any true prayer, this Lydian projection is not a false hope, or a wager made against the fear of some unfavorable outcome in the future; it is the application of a measure of change projected into the future by means of which one can actually modify the past, with total knowledge of cause, and for the purpose of improving mankind, in the simultaneity of eternity.

### **3. THE GALACTIC MEASURE OF CHANGE BETWEEN VISION AND HEARING.**

Although the paradoxes of hearing and vision are best solved in the domain of artistic composition, they can also be solved in the domain of science, and especially in astrophysics. When you observe the macro-and-micro-phenomena of a galaxy or a nebula, for instance, you are confronted with the contradictions among the different reading instruments, especially those of seeing and of hearing, as Lyn showed many times with the case of Kepler dealing with the anomalies of the planetary orbits of the Solar System. The point is that vision and hearing are contradictory for similar reasons as in artistic composition. A close examination of these contradictions, however, reveals the presence of similar anomalies, which are hidden within the proportionality between the macrocosm and the microcosm, on the one hand, and within the relationship between the memory of mankind and the memory of the



cosmos, on the other. It is the memory of the cultural milieu which determines the individual mind, and not the other way around. This situation, therefore, raises the question to the level of hypothesizing the higher hypothesis as the memory function of creativity in the universe as a whole; that is to say: how can the proportionality between the heavens and the human mind be consistent with a creative inferential phase-space of change between human vision and hearing at the micro and macro levels, and how does it determine the common measure of change for both the epistemological and the physical domains?



**Figure 6.** “The new [Chandra X-Ray Telescope](http://www.aip.org/png/html/crabneb.html) 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 the Crab Nebula of **Figure 6** as an example. What is the principle of the real nebula phase-space of change? Is it captured by the hearing or by the visual? Is the principle of change accessible to both, or neither? Will the real Crab Nebula please step forward? One irony, in this case, is the anomaly of how the macrocosm of the galactic scale intersects the microcosm of the subatomic scale, and that is not representable by sense-perception. It can only be dealt with from the vantage point of a special sort of doubly connected mental curvature; that is, a self-reflective and self-corrective curvature. Moreover, the way to understand this can only be captured by inferential knowledge; that is to say, by something like a sixth sense of proportionality, as in the general form of “*this is to this as that is to that.*” However, in terms of sense perception, we can only see and hear this form of relationship as if through a glass darkly. This means that we cannot truthfully

understand the universe without taking the dissonant effects of our instruments under rigorous consideration.

In general, our scientific reading instruments in physics demonstrate two different but complementary anomalies. One is the limitation of their extensions in space-time, and the other is the contradictory processes that those instruments encounter in measuring our auditory and visual perceptions of the solar system within the galaxy. Those two forms of limitations within our auditory and visual motions represent the most obvious anomalies that we can identify, for example, with respect to cosmic radiation. Consider then, that the boundary condition of the auditory form of the phenomenon is expressed through a wave process, while the visual form has a boundary condition located in an elliptical modular process. Each one of those processes may appear to have an independent geometric existence, but, each one is incomplete and false without the other. However, when they are brought together into a single *elliptical-wave function*, you have a new doubly-connected instrument that you can identify as an Abelian function in the manner designed by Riemann; that is, a function that relates to a higher measure which allows for determining change in the rate of transformation inside of an anti-entropic system. It is that higher measure of change which I am investigating, here, with the Lydian modality. But, this second degree change function can only work if you eliminate sense certainty from your observations. As Lyn remarked in 2008, during his presentation to La Sapienza University in Rome:

“The function of vision! So, you either take the function of actually seeing as through the telescope, or you use the mental image of the act of seeing, as the way in which you map your phenomena, map your data. But it doesn’t work! 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!

#### “Sense-Certainty Is Nonsense

“Now, music is something which Max Planck, if he were alive today, would insist on saying, is actually the same thing as Planck’s approach to the quantum. What’s that? That’s the function of hearing, isn’t it?” (Lyndon LaRouche, [WHAT IS CREATIVITY?](#) EIR, July 2008, p. 57.)

Johannes Kepler first discovered this anomaly of seeing and hearing at the macro-scale level of astrophysics, when he observed that the ellipse was not enough to salvage the errors that Copernicus and Ptolemy had made in their viewing of the epicycle eccentricity of planetary orbits. Leibniz established the modality of measuring the non-linear discrepancy with his calculus. Four hundred years later, Max Planck recognized the same anomaly between hearing and seeing in the quantum of action at the micro-scale level of sub-atomic physics. Max Planck and Albert Einstein, with the collaboration of Louis de Broglie, established the measure with which to solve the wave and particle paradox; that is, with the idea of a relativistic finite yet self-bounded function reflecting the nature of the universe as a whole.

Einstein, De Broglie, and Planck were able to demonstrate the errors of the Principle of Uncertainty that Heisenberg and Niels Bohr had falsely entertained the scientific world about the failures of sense-certainty, but were unable to stop them from successfully imposing their statistical fallacy of composition on the scientific community since the 1927 Solvay Conference. In essence, Bohr and Heisenberg had failed to account for how an anti-entropic process related to the Fine Structure Constant



(Alpha); that is, within the electromagnetic coupling constant approximating  $\alpha = 1/137$ . Here, the P/T ratio of 1/137 is not a sense-perception constant relating to the size of the electron's oscillation. It is the ratio of a second derivative process of change between the electric charge **e** and the Planck constant **h** establishing a proportion between the energy of the photon and the frequency of its wave. A great dissonance is located here, which has not been resolved since the death of Planck, and I would not be surprised to see someone discovering, in the near future, that such a fine Structure dissonance were to be resolved through some inferential shadows of the Bach musical Lydian principle. As Planck put it: "All matter originates and exists only by virtue of a force which brings the particles of an atom to vibration which holds this most minute solar system of the atom together. We must assume behind this force the existence of a conscious and intelligent mind. This mind is the matrix of all matter." (Max Planck, *Das Wesen der Materie* [The Nature of Matter], speech at Florence, Italy (1944) (from *Archiv zur Geschichte der Max-Planck-Gesellschaft*, Abt. Va, Rep. 11 Planck, Nr. 1797.)

Now, the problem that Planck encountered and was subjected to, quite against his own will, was the entropic approach to the whole matter of light intensity with respect to black-body radiation. As Planck admitted himself, the imposed quantization to the energy of the oscillators resorted to statistical mechanics and entropy, which he identified as an "act of despair," because it eliminated the very idea of universal physical principles. This epistemological dissonance establishes the proper bridge for understanding most of the anomalies or ironies which are generated in both macro-and micro-physics, today. This is the same venue which also accounts for ironic dissonances that Bach established as the tension modality for solving creative problems through classical artistic composition. This is why I prefer to call this clinical method of problem solving an *Abelian function on crutches*, because correcting mistakes by means of classical music is the best way to bring truth back into science.

Lyn was quite explicit about this least inadequate type of process 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 mediating instruments, 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 own reading instruments gave him. For instance, he realized that the conical elliptic function he used 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 simple conical circular action of mere visual observation within the solar system. Similarly, the rate of change of planetary action within the solar system could not be explained by the simple wave action of harmonic strings alone. Hearing the right pitch does not give you the truth either.

A higher arrangement of the two forms of sense-perception had to be contrived, because the two of them, correlated together, hinted at the presence of some higher principle, outside of the Solar System as such. This correlation, therefore, had to account for the oscillations of a fine tuning structure of those orbital motions within the galaxy, and that required the introduction of a human corrective and creative process as the new measure of change for solving this vision-hearing paradox. In other words, you cannot know what time it is in the universe without consulting this new galactic clock correcting method!

Thus, thinking in terms of the second derivative rate of change, that is, setting your self-correcting clock at the level of the galaxy, requires that you define your measurement as a process of fine-

constant adjustment, from the top down, in the same manner that the implementation of [NAWAPA](#), during the current world-wide mass-strike crisis, would require an increase in the rate of change in correcting the thinking of the population of each nation on the planet. As odd as this subjunctive measure of change may sound, it is the creative factor of the Lydian modality of hearing that will be required for that higher mission, the same modality expressed by Leonardo, Bach, Mozart, Kepler, Leibniz, Planck, Einstein, and De Broglie. However, a word of caution is necessary, here. The tuning measure that is required to be applied to the current mass-strike phenomenon is not a digital fine-tuning, but rather, an analog fine-tuning process that has to have a very specifically defined self-conscious Lydian modality. It is the principle that has to be more properly defined, here, not a high definition perception.

The current crisis in the galaxy and the mass strike phenomenon should be examined from the vantage point of the Lydian modality of the well-tempered-musical system of J. S. Bach, because, as the mass-strike process itself demonstrates, it can go into only one of two contradictory and opposite directions: either it takes you to a higher state of existence, or else it will self-destruct and bring you down with it. Most emphatically, from that vantage point, the Lydian modality relates to the existential state of orientation of the universe towards the future state of existence of human society as a whole. In that sense, the Lydian modality function represents a very precise tuning measure of change, expressing the axiomatic boundary condition between two phase-spaces in the process of human progress, the end of imperialism and the beginning of galactic thinking. This was also the underlying resonance of Mozart's opera, *Don Giovanni*.

During his master class on Beethoven's Piano Sonata No. 14 in C Sharp Minor, the [Sonata quasi una Fantasia](#), Andras Schiff demonstrated that shortly after it was composed in 1801, that sonata became misidentified, in 1836, for some moonlit night fantasy on Swiss Lac Lucerne, by the romantic music critic, Ludwig Rellstab, and the falsification of his silly "Moonlight Sonata" nickname came to be attached to it from that day on. However, historical records show that Beethoven's intention was, in fact, a funeral march in memory of Mozart's *Don Giovanni*. The Sonata was an explicit Lydian memorial dedication that Beethoven transposed from the C Sharp Minor scene of the Comandatore's dying moments, whose laments, reaching to the sublime level, were designed to radiate as a permanent echo throughout the rest of the opera. The dying Comandatore sang: "Now the pains of death invade me. From my breast my soul is soaring to eternal night or day..." The finer point of the Lydian treatment in Beethoven's first movement of the *Sonata quasi una Fantasia* aimed at immortalizing the truth of the sublime quality of Mozart's opera, as opposed to the lie of the romantic tragicomedy it is generally wrongly interpreted as.

Thus, like Bach, Beethoven and Gounod demonstrated, as did the measure of change used by Kepler, Leibniz, Planck, Einstein, and de Broglie, it was the same process of generating Lydian singularities for the purpose of making what is false truthful that Mozart and Leonardo also expressed their greatest sublime moments in the *Ave Verum Corpus* and *The Virgin of the Rocks*. Therefore, if those were to become the subjunctive correlating means of measuring causality in the future: let it be so!

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