

# Harmonically Guided Evolution

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This paper proposes atomic resonance as a structural guide and predetermining condition for Darwinian evolution theory. Recent studies on the mesoscopic structures of water and carbon, together with the latest geometric DNA mapping theories, suggest that life emerges and grows according to predictable harmonic patterns found in organic chemistry, preserving and propagating specific atomic geometries into living organisms. Based on this and relevant neurophysiological research, a harmonic Gaussian interference model for cellular entrainment is presented to explain the origin of common organic geometries, including cardioid, ellipsoid and spiral primitives, as well as 3-fold exo- and 5-fold endo-skeleton structures. From this, a recursive harmonic Hilbert space is defined for use in evolutionary classification, physiological analysis and organic simulations. Examples are provided, including a step-wise analysis of the human body.

Avenues for additional research are discussed, including application of harmonic Gaussian interference models to cosmology, cognition, medicine, social theory and philosophy.

## 1. Introduction

To find our deepest connection to Nature, we need look no further than the geometry of the human body. (Fig. 1) It is at the apex of Creation, reflecting the beauty of the cosmos and embodying the order of its physics. Yet in spite of this self-evident truth, we still have very little understanding about why our bodies are shaped the way they are and how that might be connected with the evolution of perception and human consciousness.

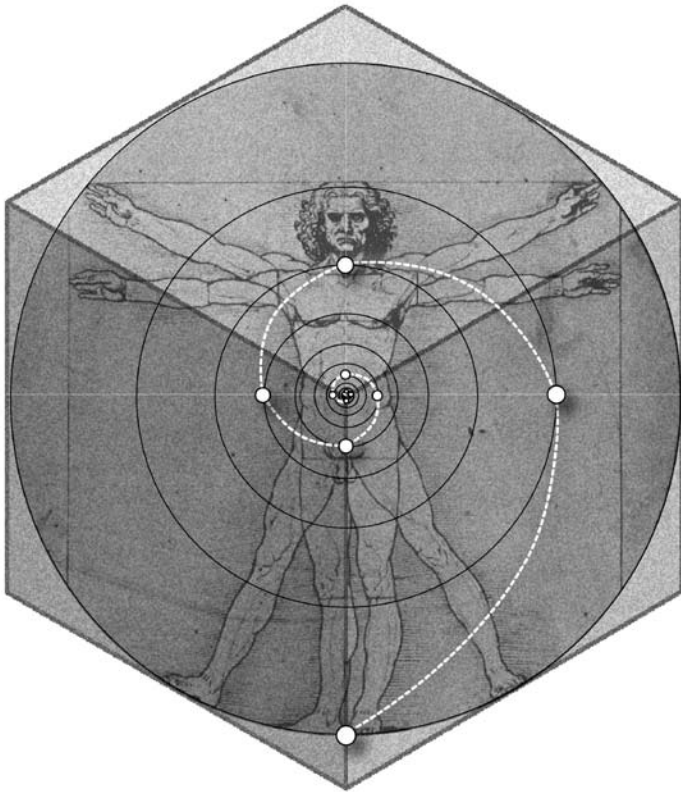


Figure 1. Life can be described as the outward spherical resonance of atomic energy contained by the inward gravitational pressure of cubic space, crystallizing according to a recursive orthogonal harmonic lattice of  $\Phi$ -damping rings.

The contemporary Darwinian view from the fields of biology and anthropology hold that the appearance of life on Earth was driven by chance from the molecular level up, then adapted over time to survive better in a hostile environment. [1] Indeed, the theory of evolution depends exclusively on natural selection and survival of the fittest (with the occasional random mutation) to explain the shapes of the tiniest plants and organisms up to the largest animal. [2, 3] The theory is probably best summed up by the rallying cry of the neo-Darwinist "If we could somehow restart life on Earth (or another planet) from the beginning, it would probably turn out completely different."

As things stand today, Darwin natural selection combined with Mendelian inheritance has become the only generally accepted scientific explanation for life on Earth. Without a better explanation, most scientific-minded people choose this theory as is, defending it without question in spite of the fact that it cannot tell us, for instance, why we have five fingers instead of six or a wave-like spine rather than a straight one. Everyone knows instinctively that something is missing in evolutionary theory to answer such questions, but what could it be?

## Re-thinking Evolution

What if there is a less obvious but universal property in Nature that physically guides evolution from somewhere *beneath* the environmental process of natural selection to carve the basic shapes of life? What if life is as much a function of the way atoms bond with one another as it is genetic mutation and selection?

Common sense alone tells us that for natural selection to be the only explanation for why life appears as it does, the fossil record should show many times the variations found. For instance, since eight legs work so well for a spider, shouldn't we find fossils of higher organisms with eight legs capable of outrunning, outmaneuvering and even out-boxing their four-legged predators?

Or, how about only three legs, which might have enabled a more efficient cardiovascular system? Where are all the "failed" animal fossils with entirely different appendages, re-arranged internal organs, extra joints that offer greater flexibility or even eyes in the back of their heads? Wouldn't some of these have been more survivable than many animals today?

Yet for some unexplained reason, fish, reptiles, amphibians, birds, mammals and even dinosaurs all ended up with the same

basic skeletal structure consisting of a wave-like spine, cardioid-shaped rib cage, single head and four limbs. While natural selection does imbue each of these creatures with a particular anatomical variation or morphology, this basic 5-fold archetype was the one and only internal skeletal template that emerged as life evolved in and out of the sea.

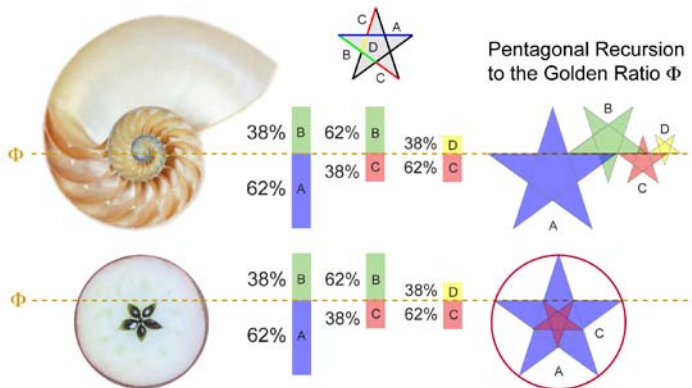


Figure 2. Pentagonal geometry of life: upper line shows the golden spiral of a Nautilus pompilius converging to the square root of 5; lower line indicates the inner seed geometry of an apple growing according to the same pentagonal recursion.

Similarly, insects are a morphological adaptation of a single 3-fold exo-skeleton template comprising a head, thorax and abdomen. These, too, appear to have occurred during the transition to land and air from simpler sea creatures.

As for invertebrates like jellyfish all the way down to bacteria and viruses, all manifest a morphology of simple periodic geometries, such as spheres, rings, toruses, tubes, helixes, stars and even icosahedrons. Plants and fungi are much the same, branching or spiraling as groups of about 62% and 38% into the extruded regular geometries of fruits, vegetables and flowers (Fig. 2).

But for natural selection to favor survivability, shouldn't we expect to see fossils of plants that once branched randomly (or equally) or land animals with much more diverse features? Shouldn't the animals alive today have descended from more efficient and fiercely competitive, anatomical archetypes?

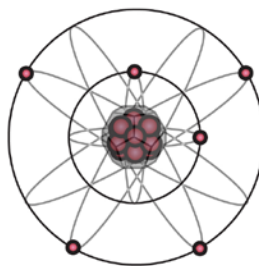
The fact is there is nothing in the theory of evolution and the fossil record that can explain any of this, any more than it can explain why leaves are not square or why fruit assumes the shape of regular geometries. So, what else could be at work to guide the evolution of life?

## 2. Atomic resonance as a framework for life

All life on Earth is composed mostly of carbon-12 and water. This is the case because carbon-12 bonds or resonates with more simple elements than any other element in the universe. It is for this very reason that carbon-12 is the international standard for atomic weight and all other elements are measured against it. With 6 protons + 6 neutrons in its nucleus and 6 electrons orbiting in two shells, carbon-12 exhibits the lowest possible energy of all the elements and is said to be 'unbound', thereby creating the most stable atomic geometry possible (Fig 3). When mixed with water, carbon-12 creates endless chains of sticky amino acids capable of crystallizing into life.

This idea of life as a crystallization process is a good one because just as minerals align under pressure into lattices, coils of amino acids fold under pressure into three-dimensional protein structures, aligning into the familiar helical lattice of DNA. It is the geometric pressure of hydrogen atoms in water that helps create the lattice and give DNA its twist.

Carbon-12 Geometry



<sup>60</sup>C Fullerene Connectivity Map

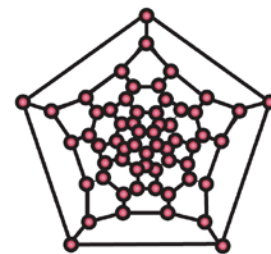
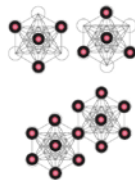


Figure 3. Carbon-60 Fullerene geometry is a result of the truncated icosahedral packing and spacing of carbon atoms in a cage.

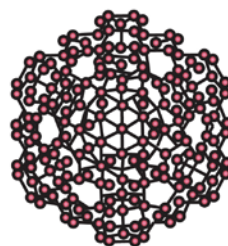
In recent molecular studies of water, biochemist Martin Chaplin found that water organizes itself naturally into a lattice of icosahedral clusters, just as Greek philosopher Plato proposed more than two millennia ago. Water really does resemble the 12-pointed, 20- faceted geometry of an icosahedron.

The water lattice begins as 4-fold tetrahedral units of 14 water molecules, aligning into 20 clusters to create the geometry of a 280-molecule water icosahedron (Fig 4). This structure then assumes a variety of stable, geometric sub-structures (such as its complementary dodecahedron) that form into even larger superclusters. At this mesoscopic scale of water, molecules arrange themselves into a 2-dimensional connectivity map of a regular 5-fold pentagon. [4a-f]

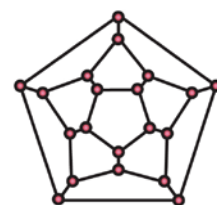
Tetrahedral Groups



Icosahedral Clusters



Pentagonal Superclusters



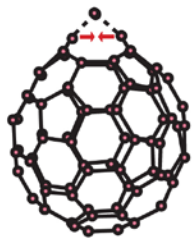
Credit: M. Chaplin

Figure 4. Water's molecular geometry begins as interlocking tetrahedrons of water molecules that combine into icosahedral clusters and pentagonal superclusters at the mesoscopic scale.

When the 5-fold icosahedral superclusters of water is then combined with the complementary dodecahedral structures of carbon, something very interesting occurs - they resonate with one another to produce the characteristic geometry of life. There is nothing random or arbitrary about this - it is an inevitable outcome of the physics of harmonics acting at the atomic level. Carbon vibrates or resonates with itself and other simple elements to form a wave-like spine while water acts to deaden or 'damp' everything into a pentagonal framework.

The role of atomic resonance in creating organic shapes was demonstrated in another recent study showing the first step of enclosure needed for a living cell occurs from a geometrical folding of carbon molecules. In a 2006 publication of the American Chemical Society entitled, *Tb3N@C84: An Improbable, Egg-Shaped Endohedral Fullerene that Violates the Isolated Pentagon Rule*, it was reported that a large, Fullerene, carbon-84 allotrope constructed its own egg-like cage when two adjacent pentagons in the carbon molecule became fused together in a reaction with terbium (Fig 5). [5]

Hexagon collapses to pentagon  
to form an egg-like cage



Geometry of a hen's egg



Figure 5. Endohedral carbon-84 Fullerene Egg shown warping into the quasi-crystal geometry of a common hen's egg.

Discovered by a combined team from the University of California, Virginia Polytechnic and Emory and Henry College, this was the first indication that the regular soccer ball geometry of hexagons and pentagons in a large carbon Fullerene could wrap itself into an egg-like cage by reacting with another atom, thereby producing a uniquely organic geometry known as a quasi-crystal.

This discovery could help answer a lot of questions. It may explain how amino acids 'learned' to form cellular containers to protect themselves from the environment. It could even offer a reasonable explanation for how ribcages came to form around vital organs in all vertebrate animals. It suggests that the atomic balance between pentagonal and hexagonal molecular geometry is the primary cause for the enclosure process of life, rather than some mysterious external selection process. The egg clearly came before the chicken!

In each of these studies, we can begin to see how evolution could be guided by geometric harmonies at the mesoscopic scale of carbon-water bonding. The 5-fold *inward-damping* geometry of water provides a kind of pressurized container for the *outward-resonating* carbon-12 atoms, bonding out of inanimate elements into living harmonic crystals. The entire process could be described as a kind of biological music resonating out of a finely tuned atomic framework constructed primarily from water and carbon atoms.

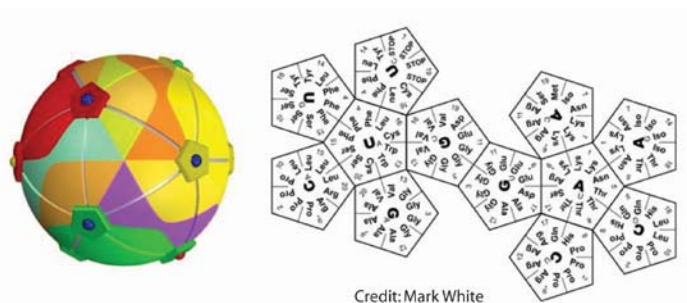
From the perspective of atomic resonance, Darwinian evolution becomes a veneer of adaptation that depends on *pre-existing and universal harmonic laws intrinsic to Nature*. Simple animals resonate into uni-body and 3-fold carbon-12 shapes while more complex forms succumb to the 5-fold damping pressure of water, branching out at approximated Golden Sections into pentagonal clusters, such as roses, starfish and the human anatomy. As the most resonant life form of all, we humans exist at the razor's edge of atomic harmony - perfectly balanced in 12:5 proportions by Nature - to achieve consciousness and ponder our own existence.

Perhaps it is time to update Darwin's 19th century theory of evolution to include atomic resonance acting in concert with natural selection. And maybe the first goal for this new theory of harmonic evolution should be to understand how carbon-water geometry is preserved in the genetic code.

### 3. Evidence of geometric encoding in DNA

A recent paper by physician and researcher Mark White, entitled *The G-ball, a New Icon for codon symmetry and the Genetic Code*, proposed that the codon table of the genetic code follows the shape of a 12-faced pentagonal dodecahedron.

Since there are exactly four nucleotides in DNA that combine in sequences of three to produce 64 codons ( $4^3 = 64$ ), White suggested that the genetic code organizes itself into the shape of tetrahedrons, which then combine into the shape of a spherical dodecahedron - *exactly like clusters of water molecules* (Fig 6).



Credit: Mark White

Figure 6. Mark White's 'G-Ball' DNA dodecahedron model showing the 20 standard amino acids organized in space according to water affinity.

Following the equilateral genetic structure predicted by Russian physicist and cosmologist George Gamow, White explains how the 20 edges of a dodecahedron (or 20 triangular faces of its dual icosahedron) can be used to represent the 20 standard amino acids in DNA. The amino acids are then assigned locations in the geometry according to their water affinity (how much they like or dislike water).

From this, protein bonds into sequences of amino acid tetrahedrons, forming into a 12-sided dodecahedral framework that is then twisted by hydrogen around a fixed polar backbone to produce the 10-step spatial symmetry of the DNA double helix (Fig 7). [6]

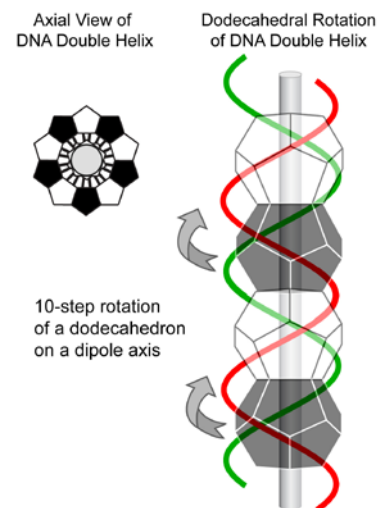


Figure 7. DNA double helix modeled as a dodecahedron rotated around a central axis.

Another study by Chi Ming Yang at Nankai University in China claims to have also found a quasi-periodic, egg geometry in the human genetic code, paralleling Mark White's G-Ball model.

Derived from the same building blocks of 20 standard amino acids and 64 tri-nucleotide codons in DNA, Yang found a cooperative 'vector-in-space' addition principle that stretches into an ellipsoid or egg-like shape called an icosikaiioctagon (Fig. 8). Not surprisingly, this geometry was determined to have originated as *five* 'stereochemical' growth stages over a period of millions of years. [7]

So, when we combine Yang's quasi-periodic model with White's G-ball model, we arrive at a structure common to all forms of biological life - a 5-fold 'egg' with a 12-fold 'yolk' inside. Through the harmonic physics of atomic resonance and damping, Nature has engineered DNA with its own eggshell container to protect the geometric resonance of life over time.

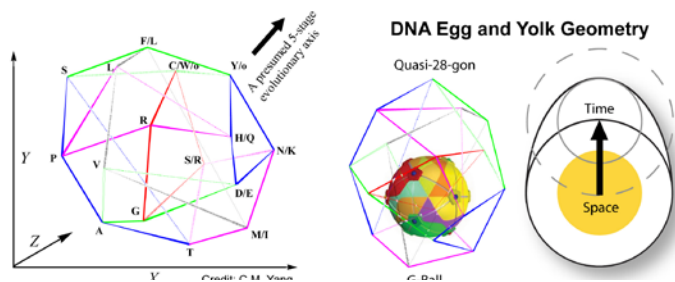


Figure 8. CM Yang's 'Vector-in-Space' DNA model showing five geometric stages of evolution. When combined with White's G-Ball model we have the encoding of a quasi-periodic geometry of an egg.

This can be understood as a natural interaction between space and time. Water creates a spherical container for carbon-12 resonance, allowing only whole number harmonic structures to form in the yolk. Around this, a pentagonal water crystal forms to protect the yolk and gestation of life. This cage is then shaped into an egg as the pentagonal crystal recurs toward the square root of five and the yolk region is displaced along a polar axis. This causes the egg to assume the quasi-crystalline shell dimensions of  $\Phi^3$  long  $\times$   $2\Phi$  wide, which reduces to  $\Phi^2 / 2 = 1.3090165$ .

While the idea that DNA could be encoded geometrically as an egg may seem "improbable" to some, the idea appears to predate even Pythagoras. As a symbol of balance in all life, early natural philosophers seemed to understand the egg as an instance of the Golden Mean - cubed in its length and doubled in its width, derived from the square root of 5 in a pentagram.

As example, Aesop's fable of *The Goose That Laid the Golden Eggs*, based on a much older Egyptian story, probably has more to do with how life grows harmonically inside a golden-proportioned egg container than it does the precious metal. In an ancient worldview founded on the physics of music, the golden egg could have been seen as a pentatonic container for a dodecahedral yolk, creating a living 7-fold diatonic animal in between ("dia-tonic" means "thru the body").

But even with the growing evidence of harmonic structures in DNA, one last puzzle remains to fully understand how DNA unfolds itself in space during reproduction. How exactly do the carbon and water atoms in DNA self-organize into larger organisms? And while the resonance of amino acids clearly start the crystallization process at the mesoscopic level of water and carbon, what can we say enables this process to continue outward into the macro structures of highly evolved life?

#### 4. Space as a resonant container

It is a well-known fact that sound will produce regular geometric patterns when particles of powder are vibrated on plates or inside liquid containers. Known as *cymatics* (from the Greek word for 'wave'), researchers such as Ernst Chladni in the 18th century and Hans Jenny in the 20th have shown how harmonic waves will reflect in containers to form circles, triangles, pentagons, hexagons and other, more elaborate, mandala-like patterns (Fig 9).

As might be expected, the simplest cymatic patterns occur inside a circular or spherical container, always aligning to a single line of symmetry. As waves resonate into standing waves, different harmonic frequencies combine to form regular patterns by crossing one another at whole number proportions. The same thing can be said to occur in the atomic substratum of DNA as harmonics guide cell mitosis. The only difference with DNA is space (together with gravity and atmospheric pressure) act as the cymatic container.

According to quantum chromodynamics, the vacuum of space is structured as a non-compressible, stationary cubic lattice.

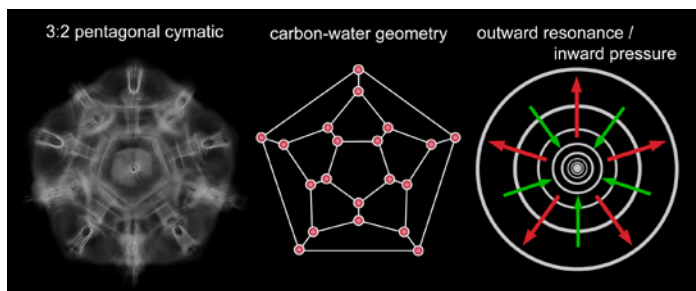


Figure 9. Cymatic resonance pattern in a circular container show how water molecules resonate together inside a pressurized bubble to form pentagonal supercluster crystals.

One interpretation of this lattice is as a field of nominal Schwarzschild black holes comprising a field known as the *Schwarzschild lattice*. Within this definition of quantized space, atomic particles (bosons) are said to center on spiraling vortices (called a *Flamm paraboloid*) in a given cell of the lattice, forming geometrical patterns in its nucleus and orbiting electron shells. [8]

So, when we now consider carbon and water atoms resonating together inside a geometrical space lattice - pressurized into spherical bubbles by Earth's gravity and atmosphere - the atoms and molecules in living tissue would naturally entrain and resonate synchronously into larger and larger cymatic patterns.

For life, it must be the quantum structure of space and the pressure of its gravitational "egg" that together have the 'know how' to arrange vast numbers of resonating molecules into life-size crystalline structures. In this way, living cells would dynamically self-organize into stable geometries much like powder vibrated inside a spherical water container.

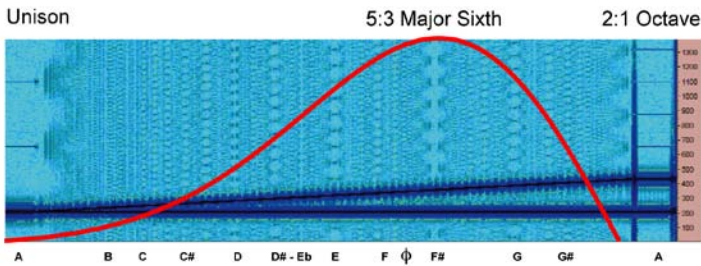
In the container of a human body, the energy of resonating atoms, molecules and cells would have little choice but to entrain into a reflected harmonic standing wave, rippling outward from the  $12 \times 2 = 24$  vertebrae of the spinal column with less and less energy to the tips of our  $5 \times 2$  fingers and  $5 \times 2$  toes. Here again we find the body described as a  $12 : 5$  dodecahedral proportioned carbon-water crystal resonating under intense gravitational pressure into the container of the quantum chromodynamic lattice. It is not a matter of metaphysics to say that life is crystallized light formed by spherical harmonics in a structured space.

#### *The universal harmonic pattern of life*

This discussion now brings us to a definition of life based on the physical process behind the formation of harmonics in a circular or spherical container. Properly defining this process is essential in understanding the physics guiding evolution and the patterning process of organic growth. As we will see, the geometry of life can be traced back to one universal pattern of harmonic interference.

Not too surprising, this universal pattern can be easily found using a "Blackman spectral analysis" of two musical tones diverging at a constant rate from unison upward to an octave (Fig. 10). Reproduced here with a built-in function in *Adobe Audition*®, the analysis reveals the spacing and size of resonant gaps that form naturally according to small whole number harmonic ratios, just as Pythagoras had discovered over 2,500 years ago. Each gap corresponds to a simple musical proportion, such as the 3:2 ratio of a perfect fifth, 4:3 perfect fourth and the highly resonant 5:3 major sixth - the widest gap of all.

To be clear, this is not a random, variable or contrived pattern, but the one universal pattern of interference produced by all harmonic standing waves as they vibrate through any medium.



Gaussian First Derivative Distribution of Gaps

$$y = \frac{d}{dx} \left( \frac{1}{s\sqrt{\pi}} e^{-\frac{m \cdot x^2}{2s^2}} \right), s=1, m=5$$

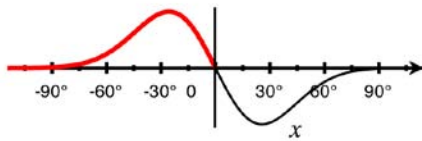


Figure 10. The Gaussian shape of harmonic interference.

This spectral pattern is not limited to sound only, but exists everywhere harmonics form, including electromagnetic fields, laser light, musical tones, natural vibrations in the Earth, the spacing and sizes of planets in our solar system and the coherent cellular structures of life. We can represent it mathematically using a statistical curve called a *first-derivative Gaussian distribution* (shown in red in Fig. 10).

You will probably never learn in school how important this harmonic curve really is, but it is present everywhere in Nature. It approximates the change in the number of spots on the Sun, describes the change in diameter of blood vessels in living organisms and estimates the thickness of tree bark as it reduces upward in a tree, to name but a few. As a representation of the velocity change in a Gaussian “normal distribution” (or “Bell Curve”), this one function is the foundation of probability science and the very cornerstone of modern statistics.

But while most scientists accept and use this distribution and its strange equation without question, some of us might still wonder what physical process is at work *underneath it* to cause harmonics to always self-organize in this way. How can we understand what this Gaussian equation is trying to tell us about Nature?

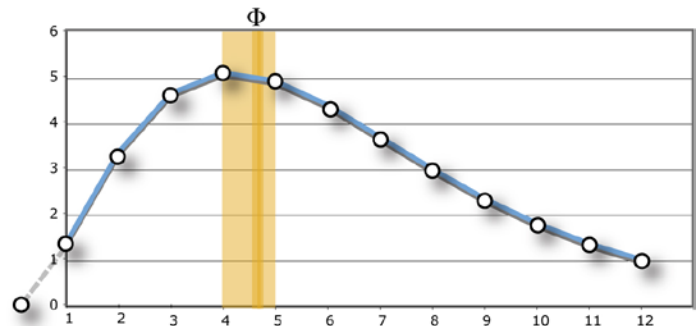
When we stop to consider the curve from a philosophical perspective, we can begin to understand the basic principles underneath it, driving the harmonic patterning process. A more intuitive and organic description of the resonance pattern can be expressed as the square of the linear harmonic series as it is curved (one might say *carved*) by the Fibonacci series (Fig. 11).

As we see in the figure, the interference curve is a natural byproduct of harmonics as they resonate and damp one another. It results from the square of the first twelve frequencies of the harmonic series, as {1, 4, 9, 16, ..., 144}, divided by the first twelve Fibonacci frequencies {1, 1, 2, 3, ..., 144}. This is summarized by the *Harmonic Interference function* in the figure, expressing the balance between spatial resonance and temporal damping in a simpler, more beautiful symmetric form.

With this one equation, we can see how Nature balances itself between the finite and the infinite, harmonizing a closed resonating circle or harmonic wave with an open Fibonacci spiral. It represents nothing less than the geometric harmony of  $\pi$ -squared divided by the golden ratio  $\Phi$ , otherwise known as the “squaring of the circle.”

### Harmonic Interference function

$$y = \frac{\text{Res}(x)}{\text{Fib}(x)}, x = \{1..12\} \quad \text{Res}(x) = x^2 \quad \text{Fib}(x) = \Phi^x / \sqrt{5}, \Phi \approx 1.618033$$



x	Fibonacci Number	Fib(x)	Res(x)	Res(x)/Fib(x)
1	1	0.723605	1	1.38
2	1	1.1708146	4	3.42
3	2	1.8944132	9	4.75
4	3	3.0652174	16	5.22
5	5	4.9596136	25	5.04
6	8	8.0248037	36	4.49
7	13	12.984373	49	3.77
8	21	21.009105	64	3.05
9	34	33.993362	81	2.38
10	55	55.00228	100	1.82
11	89	88.995339	121	1.36
12	144	143.99713	144	1.00

Figure 11. An organic expression of the Gaussian first derivative.

While this may all seem a bit abstract at first, its relevance to understanding how harmonics guide the evolutionary process will begin to become clearer after a minute or two. Consider first the fact that spherical stars and planets form out of spiraling clouds of plasma. Then consider that life also grows out of a spiral. We see this in the unfolded Fibonacci spirals of tree branches, the spiral of a chambered nautilus and the spiral of a human embryo. In a very real and physical way, everything emerges out of infinity as a spiral, eventually stabilizing into a harmonic wave or sphere.

So when we now take this harmonic interference pattern and geometrically square it again, folding it back upon itself as if reflecting inside a circular container, we arrive at perhaps the most important geometry in the universe and the one guiding pattern at work in the evolution of life – the symmetrical *Reflective Interference Model* (Fig. 12).[9]

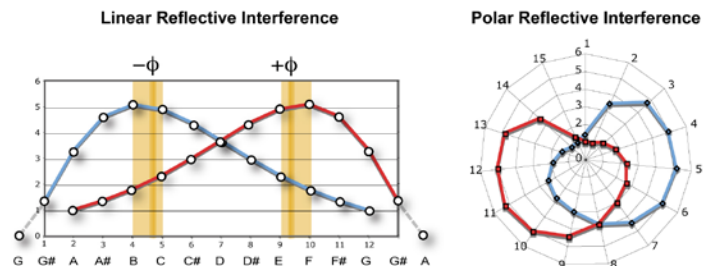


Figure 12. The universal harmonic pattern of life.

Formed from the harmonic mean between a circle and a spiral, this organic-looking curve is the shape life assumes as it evolves into higher and more complex organisms. We can prove this by observation.

First of all, DNA and all forms of life always orient around a polar axis (see Fig 13). In humans and other animals the primary axis becomes the spine while for plants it is the trunk or stem.

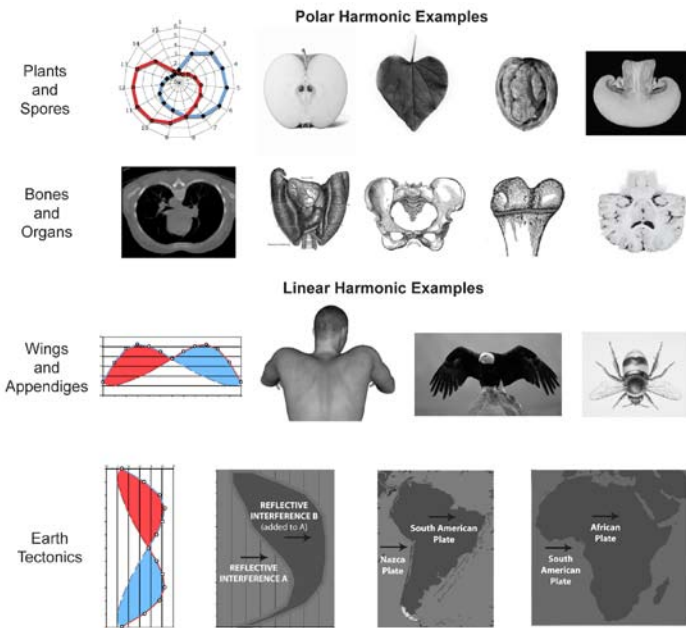


Figure 13. Harmonic shapes in Nature.

As cells grow and resonate outward from their polar axis, the *Polar Reflective Interference Model* tells us that they resonate or explode outward (in slow motion) as a circle or sphere, but then begin to lose energy and damp back inward, spiraling and twisting back toward the polar axis. As this reflects in two opposing directions, a heart or cardioid shape forms with an intersecting almond-shaped region called a “mandorla” in the center. We see this geometry in such things as plant leaves, fruit, bones and internal organs, such as the brain and cardio-respiratory system. A MRI cross-section of the chest is probably the most impressive example, revealing how the heart nests inside the mandorla.

Sometimes this harmonic pattern runs along a line instead of around a polar axis. Examples of *Linear Reflective Interference* can be found in such things as wings, shoulders and even the Earth’s spherical tectonic plates (stretched at the equator and narrowed near the poles). The most noticeable example of linear harmonic geometry is the double Gaussian shape of human breasts. As the organ that generates more energy during lactation than any other organ (including the brain), female breasts act as a damping

container for cellular resonance either side of the heart. Nipples are a function of this resonance, forming near the apex (or max velocity) of the interference curve, opening at golden ratios to the surface of the body ( $\Phi$  and  $-\Phi$  in previous Fig. 12). All sentiment aside, mother’s milk is a physical expression of the heart’s harmonic resonance.

This same harmonic interference pattern is found repeated at different scales and orientations throughout the entire human body. Yet, it is not immediately apparent why the pattern configures itself the way that it does. Is it strictly random, a result of mutation and natural selection as the Darwinian theory of evolution claims, or is there an even larger harmonic pattern involved?

## 5. Harmonic patterns in the human body

A larger pattern does indeed appear to be guiding evolution. When we take both the Blackman spectral analysis and Reflective Interference Model and compare them proportionally to Leonardo da Vinci’s *Vitruvian Man* illustration, we find a number of correspondences between the resonant gap pattern and key locations in the human body (Fig 14).

The point of maximum resonance (a 5:3 ratio) aligns precisely with the lower throat and top of the heart. The point of maximum damping (the golden ratio) then aligns with the lower heart. Together, these two locations correspond to the pumping action of the heart as it contracts in a twisting or wringing motion from top to bottom. Arms occupy this same resonant region, branching outward along the wide open pattern of gaps. This cannot be only the result of natural selection or random mutation.

Other correspondences include a pronounced stripe aligning with the top of the Vitruvian square and several gaps aligning with the brain, navel, perineum and knees. Based on these alignments, it seems undeniable that the human body is structured just like two musical tones diverging over an octave from the toes out to the fingertips. Thus, if the geometry of life is a function of harmonic resonance like a musical octave - then, the spine represents an axis of resonance in the body, partitioned into 24 discrete harmonic frequencies.

To this point, if we take the radius of the circle to be  $2\pi$  and then align one full cycle of a harmonic standing wave with the navel, the fifth harmonic (a 3:2 proportion) can be found to match the curvature of the human spine - *exactly*. More amazing than this, the location and spacing of the seven tones of a musical major scale align with the seven Hindu chakra locations in the

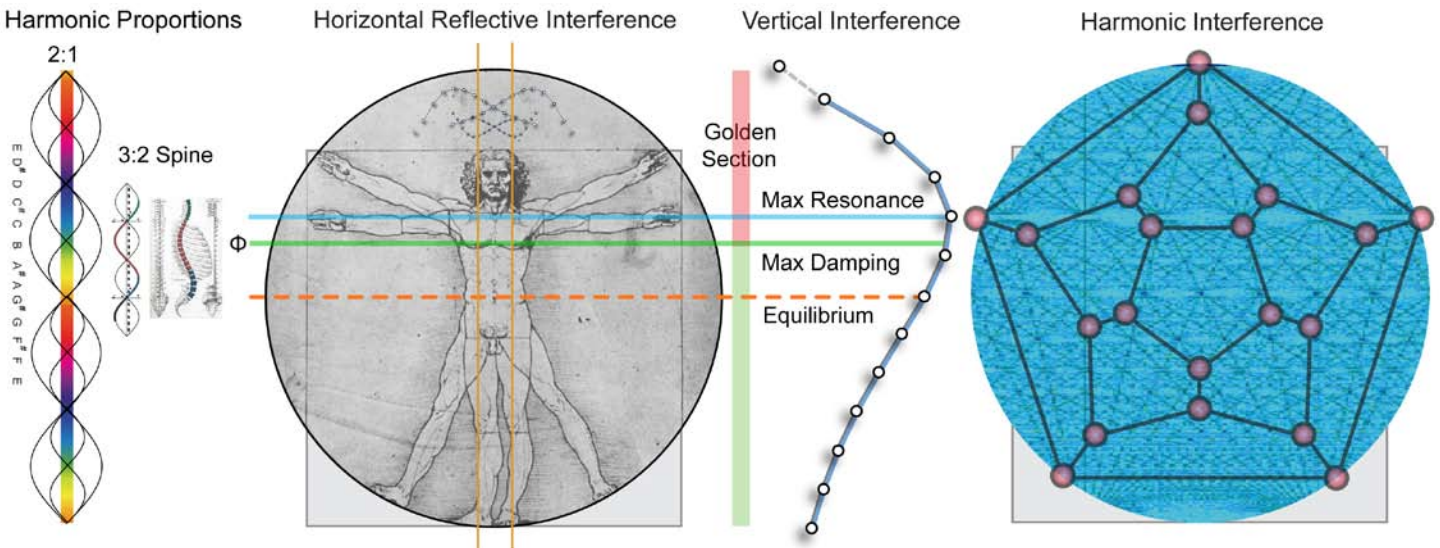


Figure 14. Harmonic interference patterns in the human body.

body. Even the traditional chakra colors align to these locations when the perineum (at the bottom of the torso) is assigned red at the bottom of the visible light spectrum. Obviously, someone understood harmonic interference patterns and their presence in the body a long, long time ago.

From here, we can reverse engineer the basic harmonic framework of the body using the physics of a circular cymatic resonance container. We begin by following a series of concentric damping rings spaced by the golden ratio converging inward toward the center of the body (Fig. 15). These rings represent the calmest and most stable locations in a circular standing wave.

At the outermost ring, there is 100 percent damping and no resonance, but as we move to the next two rings, appendages appear followed by a space for the torso. At the fifth ring in, a split occurs at the solar plexus, creating a new point of symmetry for the upper and lower halves of the torso.

From the solar plexus, a 3:2 harmonic shockwave (fifth harmonic wave) apparently travels along the spine to the brain, creating a dipole nervous system. The head itself is dimensioned by

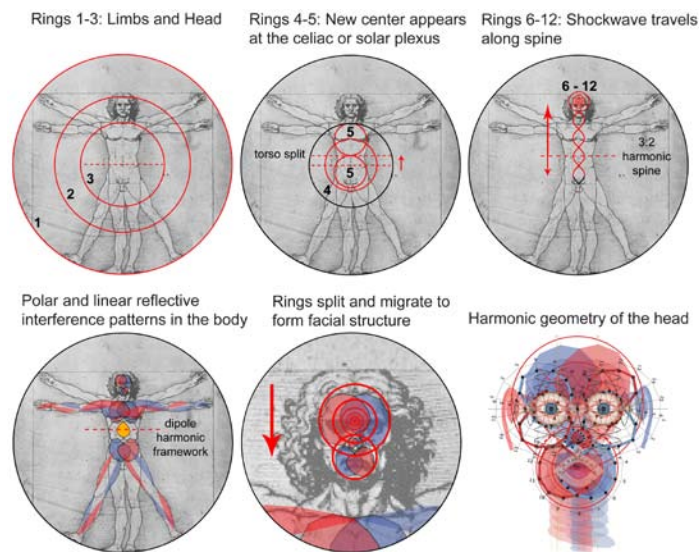


Figure 15. Reverse engineering the geometry of the human body.

another set of seven rings with the seventh ring migrating tangentially downward to define the basic geometry of the face.

Within this ring set, Polar Reflective Interference patterns paired with a few simple waveforms can account for virtually every facial feature – from the coronal geometry of the brain down to the skeletal structure of the face. Even the tongue seems to fit perfectly inside the almond-shaped mandorla region in the lower interference pattern.

When we take a closer look at the geometry of the brain itself, we find more compelling evidence of spherical harmonic patterns guiding the evolution of perception and the five senses (Fig. 16).

The brain begins as a single ring set at the end of the spinal column that resonate at a 90-degree angle from the temporal lobe (as cosine) to form the frontal lobe (as sine). This frontal ring set then continues by taking a right angle turn down, phase shifting another 90-degrees from the frontal lobe ring set (as sine) into the mouth-jaw region (as cosine). In this way, the geometry of the head completes a half-twist or  $\pi$ -radian phase shift from cosine harmonics to sine and back to cosine. This half-twist phase shift between three sets of harmonic rings would explain how our face came to be cross-wired to our brain.

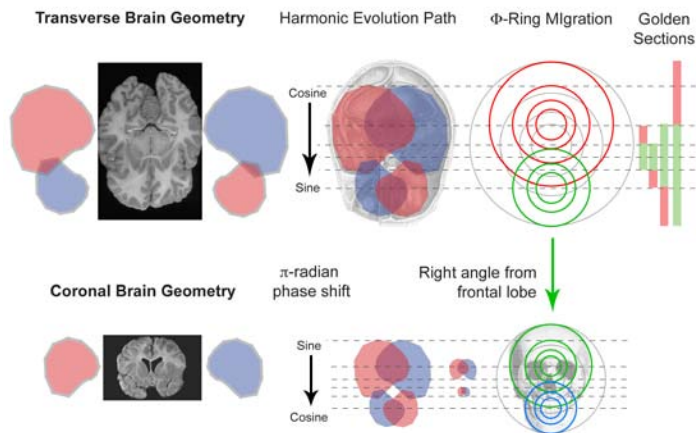


Figure 16. Geometry of the human brain and skull.

But the twisting does not stop there. It appears to continue spiraling inward, opening up the mouth to the nasal passage and displacing inner cells forward, carving out the sinus cavity and forming the peculiar shape of a nose (Fig. 17).

Our head is indeed a fifth appendage that winds around our ear canal into the jaw hinge, clenching into itself like a chambered nautilus instead of unfolding as our arms and legs do. If it were unwound, it would form a perfect star geometry with the body that sequentially hears, sees, tastes, smells and feels as it narrows to a point. Top this off with the pentagonal cranium found in every human infant and it becomes pretty clear that our body evolved as a pentagon in the anterior and dorsal dimensions and as a Fibonacci spiral in the lateral (or side) dimension of the head, unfolding into the sinusoidal wave of the spine.

So it is through a brief geometric analysis of our bodies that we can understand how life evolved according to harmonic principles – not merely through natural selection and accidental mutation as commonly believed. The same Reflective Interference Model is repeated over and over at different scales and orientations in the body, spiraling and twisting at right angles into itself to fill the gap left by the previous pattern. This is our body's fractal logic.

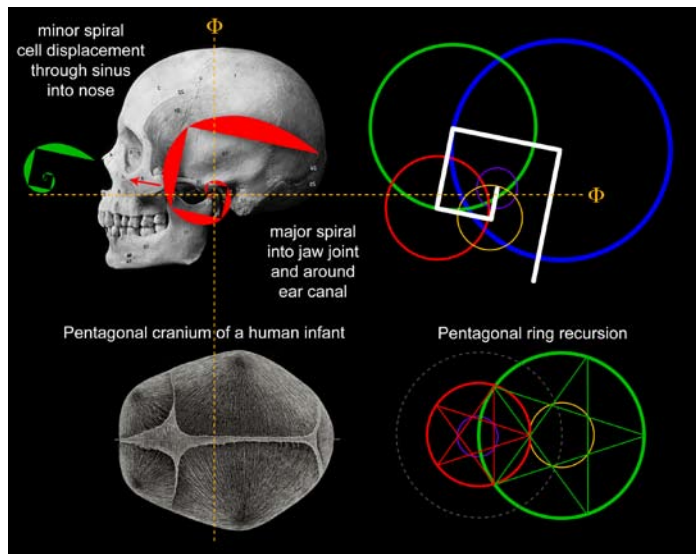


Figure 17. Human cranium as harmonic focusing apparatus.

But of course, the body does not begin from the outer ring and work its way inward – rather, it starts somewhere in the innermost ring (conceived as an idea, perhaps) and unwinds outward. If we follow the rings in reverse order from the inside-out, we find that growth must begin at the center of the brain where resonance is greatest, unwinding into the spine and splitting into an upper and lower torso under damping pressure of Ring 5 (seventh ring from the center). From here, it extrudes outward into five appendages, each with their own five appendages to touch the world.

The significance of five in all this can be found in the damping pressure of the fifth harmonic wave (crystallized into the 3:2 “perfect fifth” of the spine) in slowing atomic resonance and stopping cell growth. It is this very special harmonic that generates the golden ratio  $\Phi$  at the center of the body’s spiral by crossing or interfering with its fundamental resonant frequency. This is expressed by the equation for the golden ratio as  $\Phi = (1 + \sqrt{5}) / 2$ .

### 6. The Harmonic Lattice

Based on the previous discussion, a *Harmonic Lattice* is now proposed as a resonant container for organic growth that guides evolution. Using an outer orbital radius of  $2\pi$ , a grid of mutually orthogonal standing waves can be superposed over concentric  $\Phi$ -spaced damping rings to create an organic Hilbert space. This lattice is the only arrangement of standing waves in two dimensions that can sustain field resonance. (Fig. 18)

To match the harmonic proportions of the human body, each ring is assigned a frequency multiple corresponding to its ring number. For example, Ring 1 is assigned the fundamental frequency, Ring 2 the harmonic frequency of  $2X$ , Ring 3 the frequency  $3X$  and so on. In this way, growth is represented as an inside-out patterning process governed by twelve cylindrical harmonics shifting in step-wise fashion from maximum resonance to maximum damping.

Using this recursive lattice, we can calculate the squaring of the circle represented by the Vitruvian model as a balance of resonance and damping. Beginning with radius  $R$  of Ring 1, equal to  $2\pi = 6.28318$ , the area of the Vitruvian circle is:

$$A_{\text{Circle}} = \pi R^2 = 124.0248$$

The area of the Vitruvian square (according to Vitruvius) can then be calculated as the golden section of  $R$  as:

$$H_{\text{Square}} = R \times \Phi = 10.1664$$

$$A_{\text{Square}} = H_{\text{Square}}^2 = 103.3555$$

Taking the ratio of the areas of the circle and square we have:

$$A_{\text{Circle}} : A_{\text{Square}} = 124.0248 \div 103.3555 = 1.1999 \approx 1.2 = 12:10 = 6:5$$

This result is consistent with the 12:10 ratio of carbon-water resonance and the dodecahedral helix structure of DNA.

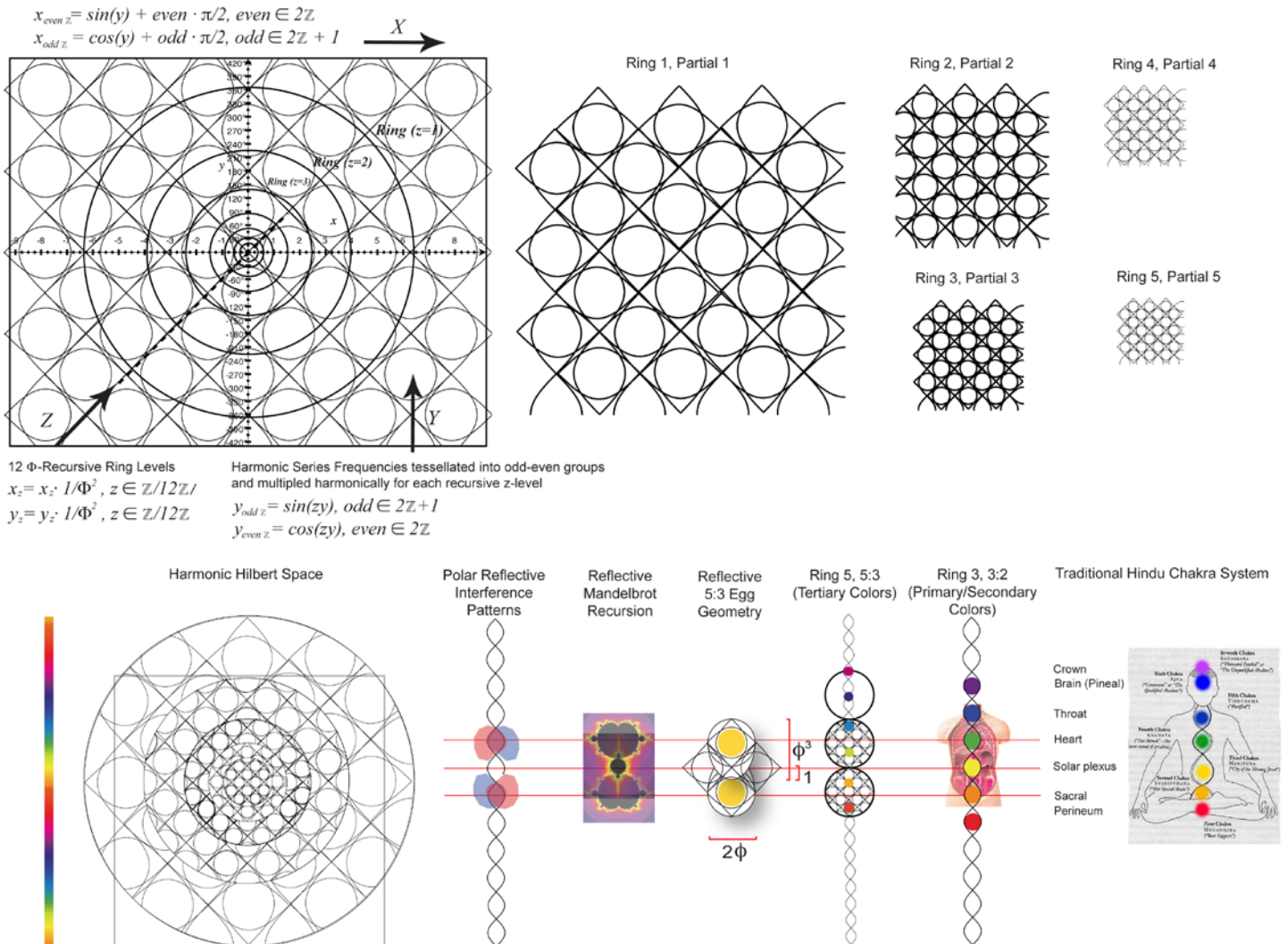


Figure 18. Harmonic Lattice provides a recursive Hilbert space model for organic growth and evolutionary classification. The Lattice provides a single platform for the inclusion of other harmonic models and offers a theoretical framework for previously unexplained physiological properties.



We see here that “squaring the circle” is really the closest possible ratio of 12 to 10, making the Vitruvian model of the human body a 12-fold ringed recursion divided by 10. Indeed, this is the only way to balance  $\pi$ -resonance against  $\Phi$ -damping in the orthogonal standing wave model of the Harmonic Lattice. As the penultimate harmony of space and time, the 12/10 or 6:5 ratio in the human body is an embodiment of the balance between spherical energy and cubic space - a circle and square:

$$\pi : \Phi^2 = 1.1999 \approx 1.2$$

From this, we can calculate the precise point of balance in the growth of the human body where resonance transitions to damping.

Since it was at Ring 5 where the torso splits to create a new center at the celiac (or solar plexus), we begin by calculating the surface area of Ring 5:

$$\begin{aligned} A_{\text{Ring 5}} &= \pi(R * (1/\Phi)^4)^2 \\ A_{\text{Ring 5}} &= \pi(0.9167)^2 \\ A_{\text{Ring 5}} &= 2.64 \end{aligned}$$

On either side of this number we find the outermost “squared circle” proportion of  $\pi : \Phi^2 = 1.1999$  (or 1.2 rounding up) and its reverse-squared proportion of  $\pi^2 : \Phi = 6.099$  (or 6 rounding down). When the area of Ring 5 is taken as a proportion to each of these square proportions and then multiplied together, we find the point of transition where damping overcomes resonance in a standing wave to be:

$$\begin{aligned} \text{Torso Split} &= (A_{\text{Ring 5}} : [(\pi : \Phi^2)] \times [(\pi^2 : \Phi) : A_{\text{Ring 5}}]) \\ \text{Torso Split} &= (2.64 : 1.2) \times (6.0 : 2.64) \\ \text{Torso Split} &= 5 \end{aligned}$$

Not surprisingly, the point of balance in the Vitruvian model (and in the human body) is at a 5:1 proportion. The reversal to square  $\Phi$  (replacing square  $\pi$ ) represents water’s pentagonal damping pressure against carbon-12 resonance. This is the math behind the previously unexplained split in the human torso.

At and below the fifth ring, we find  $\pi$  and cyclic harmonic proportions resonating to drive growth - but, as we reach the fifth ring,  $\Phi (= (1 - \sqrt{5}) / 2)$  becomes dominant to damp inner resonance and gradually slow cell growth in the outer four rings. Growth stops altogether when cellular resonance reaches zero at the toes and fingertips.

In the body, this transition at Ring 5 must be the defining event that generates the 3:2 spine and nervous system. The spine, measuring a half-period or  $\pi$ -radian in length, is then partitioned into 24 discrete vertebrae (as the proportion 24 : 10), each scaled proportionally by  $\pi/24$ . And, since  $10\pi/24 \approx \Phi^3 : 2\Phi$ , each group of ten vertebrae closely match the proportion of a golden egg - cubed in its length and doubled in its width.

Parallel with the spine, the heart, celiac and uterus also align with the 3:2 anti-nodes of the spine’s sine wave, fitting perfectly inside the lattice of Ring 3 (Fig. 19). The overall structure of the torso is triadic with vascular branching along a vertical sinusoidal flow. The analysis suggests that cells entrain along electromagnetic paths during growth and evolution, crystallizing coherently in accordance with the proposed Harmonic Lattice.

Additional work is required to parameterize the lattice for deformation in order to accommodate the morphological adaptation found in the fossil record and living organisms. Further correlation with the genetic code is also needed to adequately explain harmonic entrainment in terms compatible with the existing fields of organic chemistry and molecular biology. Doing so could have a profound effect on the direction of medical research, including computer modeling and even the engineering of entirely new species.

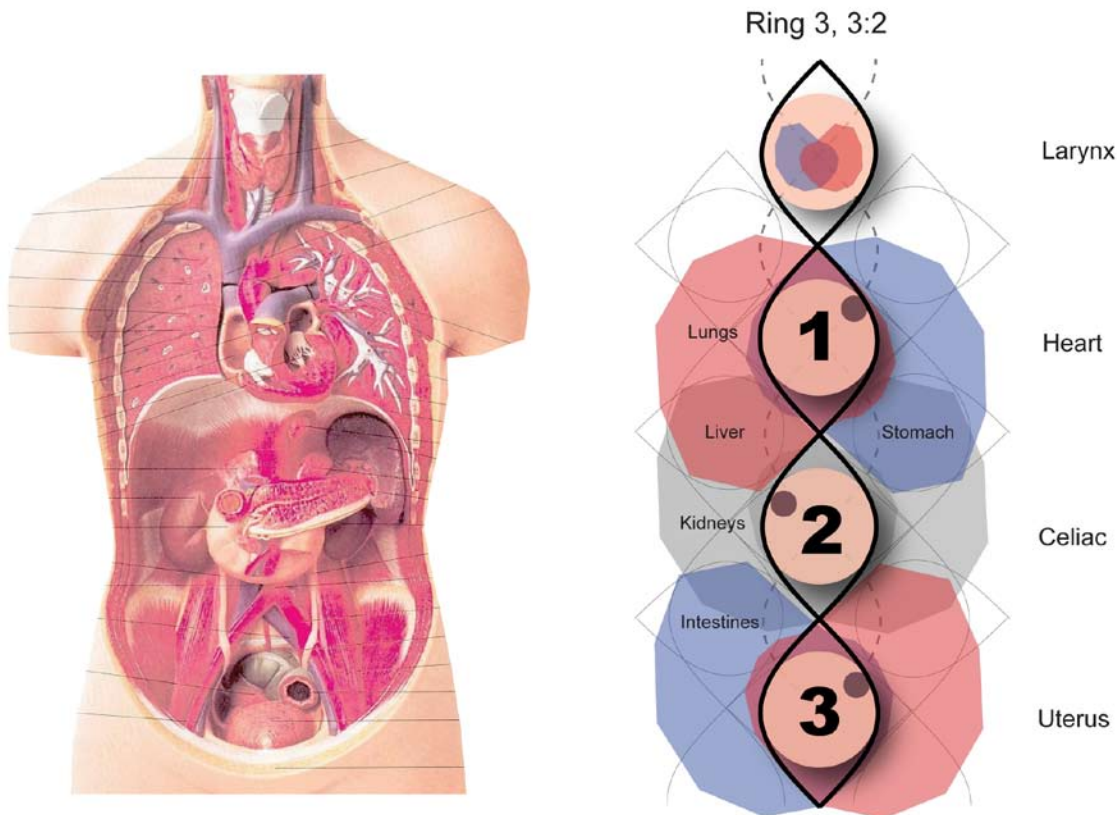


Figure 19. Triadic arrangement of Gaussian interference patterns in the human torso.

## 7. Suggestions for additional research

Since harmonic physics is universal to all things, the Reflective Interference model and Harmonic Lattice can be applied to any number of other fields of study with surprising results. Topics normally not associated with evolutionary theory, such as psychology, cosmology, sociology, music and computer simulation, can all benefit. Harmonic models offer a powerful cross-disciplinary platform capable of connecting diverse findings while expanding the scope of evolution into these fields. Here are a few examples.

### The solar system as harmonic container

By definition, Darwinian theory assumes that evolution began with the very first organism, or at least the earliest known fossil. But if harmonic physics was at work at that time guiding the growth and evolution of life, why would it not also have guided the development of the Earth and our solar system? Could there be a cosmological equivalent to harmonic evolution in life?

As it happened, our solar system evolved according to the same harmonic principles in life. For example, the solar system can be modeled as a geometrical pattern *without using any physical measurements whatsoever* and within a cumulative average variance of less than -0.04 percent. Beginning with Mercury's orbit, we simply calculate each successive semi-major axis as a multiple of the constant 1.6877, equal to  $39^{(1/7)}$  or one-sixth the semi-major axis of Eris divided by 1,000 (Fig. 20).

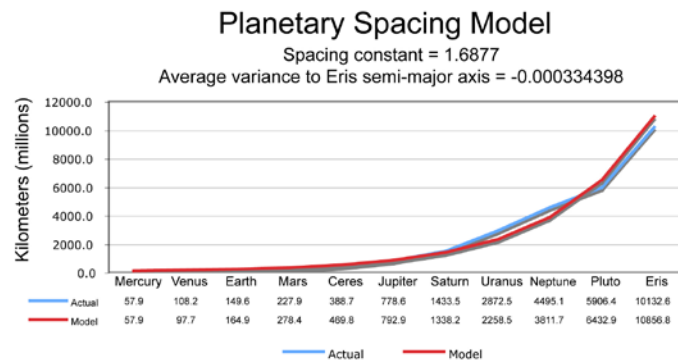


Figure 20. Logarithmic spacing model for the solar system

While only an approximation, the actual orbits of the planets vary from this geometrical model according to a Bessel envelope of cylindrical harmonics like those that form on a round cymatic plate. The spacing constant itself is a very special proportion that balances almost perfectly between the golden ratio and the base of the natural log:

$$e \div \Phi \approx 1.68.$$

Because of this, we can describe the overall spacing of the planets as the result of the anti-harmonic damping function of the golden ratio during solar evolution. Evidence for this can be found in the golden average of the actual spacing of the planets (Fig. 21).

We might now understand the solar system in harmonic terms as nodes that resonated into rings within a spiraling disc of hot plasma much like cymatic rings forming on the surface of a vibrated plate of sand. As waves rippled from the solar center out to the edge and back, harmonics resonated particles toward the calmest locations, gradually spiraling into rotating planetary systems. Harmonic interference between colliding particles in the plasma disc can explain why simple harmonic resonances are found in the orbits and relative sizes of the planets.

Planet	in kilometers* (millions)	Ratio of distance between bodies	Category
Mercury	57.91	1.00000	Planet
Venus	108.21	1.86859	Planet
Earth	149.60	1.38250	Planet
Mars	227.92	1.52353	Planet
Ceres Asteroid Belt			
Ceres	413.79		Small Dwarf Planet
Juno	399.13		
Vesta	353.20		
Ceres Avg.	388.71	1.70545	
Jupiter	778.57	1.88156	Planet
Saturn	1433.53	1.84123	Planet
Uranus	2872.46	2.00377	Planet
Neptune	4495.06	1.56488	Planet
Pluto	5906.38	1.31397	Small Dwarf Planet
Eris	10123.01	1.71391	Small Dwarf Planet
<b>Total</b>		<b>17.79939</b>	
Average		1.61813	
Golden Ratio ( $\Phi$ )		1.61803	
Variance		0.006%	

\* Semi-major axis is the radius of an ellipse running through the foci. Source: NASA

Figure 21. The golden mean in planetary spacing.

Thus, it is possible to use the same evolutionary Harmonic Lattice framework for life to explain the harmonic development of our solar system. (Fig 22).

Each  $\Phi$ -spaced ring in the lattice can be described as an orthogonal or 90-degree location on a golden spiral. Since harmonic waves are most coherent and stable at right angles to one another, they would naturally entrain with a  $\Phi$ -spiral as illustrated in the model. The original solar spiral continues to this day as the Sun's *heliospheric current sheet*.

Just like the spirals of galaxies and other solar systems, counterbalancing spiral arms form as the pressure differential of gravity causes the space lattice to curve - triggering the Coriolis effect, starting rotation and polarizing the solar disc. Orthogonal to this disc, a toroidal pattern like the Polar Reflective Interference Model forms into the solar wind. All of this occurs according to universal harmonic laws, setting the stage for life.

In this way, we might extend the scope of evolution to include principles of resonance as they guide the solar system, bridging the study of cosmology with biology. Evolution is first and foremost a matter of harmonic patterning in a containment field, regardless of whether the container is a body or structured space. Darwinian theory is but a secondary process of adaptation to all this.

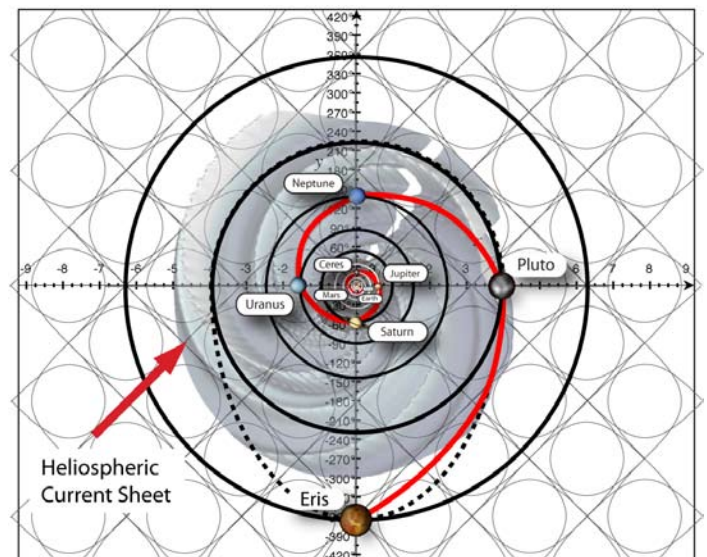


Figure 22. Solar Harmonic Lattice model showing max damping orbits.

## Perception as harmonic focusing function

One of the major shortcomings of Darwinian evolution theory is its inability to explain what caused inanimate matter to become animate. There is simply no fossil record of a trial and error process that explains how simple life “learned” to develop sensory organs during a process of natural selection and random mutation.

Recent neurophysiological research is finding evidence that harmonic structures in the body provide an autonomous focusing function required by sensory organs. In vision cognition studies, the “Gaussian derivative model for spatial-temporal vision” has been found to best describe the first stage of processing in our visual cortex for motion, orientation, location and size. [9] Similar studies of auditory cognition in cats and monkeys have also found a natural Gaussian derivative filter in the inner ear and auditory cortex that helps focus sound. [10, 11]

Together, these studies confirm the presence of a universal Gaussian derivative filter that helps mammals (and other biological life) identify and maintain attention on objects and sounds in the environment, a necessary skill for survival. As example, consider how a pitch-sensitive auditory filter would help identify the sounds of a predatory animal in time to flee. Or how it could help recognize the crying tones of offspring separated from the pack. In people, a Gaussian derivative filter in our auditory system is the reason we can recognize the pattern of concordant gaps in a musical octave and effortlessly follow the melody of a single instrument in an orchestra.

But since the Gaussian derivative distribution curve is just another name for the spectral interference pattern that harmonics make, these studies also tell us that we prioritize the world by focusing mostly on harmonic things. For instance, the Fibonacci spirals of our ears begin the focusing process of sound by “unwinding” or canceling out fractional enharmonic frequencies to prepare sound for the eardrums. And since eardrums also happen to be shaped as a Polar Reflective Interference pattern with the inner ear bones positioned to measure maximum resonance and damping on the membrane, harmonic geometries are again emphasized out of the ocean of incoming sound.

As sound propagates further into the Basilar membrane of the ear’s spiraling cochlea, thousands of tiny hairs provide even more filtering by bending around the gaps that harmonics create. When you consider physiology as a prerequisite for cognition, the spiraling anatomy of the human ear evolved to reduce noise while enhancing recognition of harmonics. This must be why we can enjoy and respond emotionally to music. Simple music harmonies fit the coherent structure of our body like a glove.

Vision also has its harmonic filter. Around the fovea centralis, or “blind spot” at the back of the eye, color cones self-organize according to something called a Gaussian density curve. Neurophysiologists use the Gaussian Color Model of hue, luminance and saturation to describe how our vision system interprets color as shapes. Few people realize that color actually helps us recognize objects in space and that everything we see is filtered and prioritized depending on how harmonically shaped it is. Thus, plants and animals with their reflective interference physiology are easily recognized and assume a higher priority to our eyes and ears than, say, a boulder or some artificially manufactured object.

In the most general sense, harmonics are a focusing property of Nature and should be central to any theory of evolution. The question is where does this process really begin and what causes it? What is the fundamental principle of evolution that focuses energy into life?

We can trace the harmonic evolution process back to the lattice structure of space itself as it first focuses light into particles,

then particles into atoms and atoms into molecules. It is from the resonant atomic geometries of nucleotides that Hox genes in DNA know how to shape networks of other genes into specialized organs, probably communicated as concordant frequencies inside the circular field surrounding the fetus during gestation (Fig. 23).

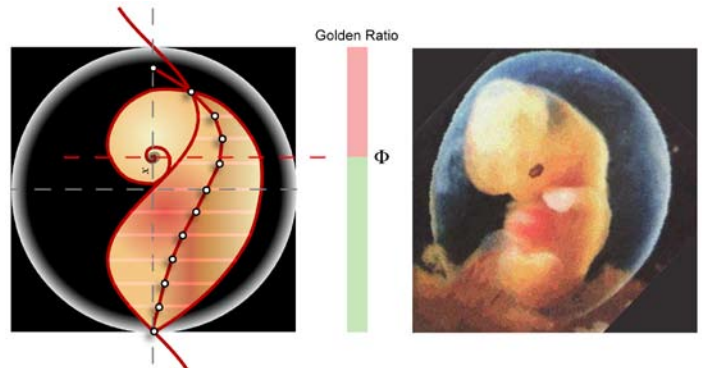


Figure 23. Embryonic harmony between a spiral and a circle.

Some cells focus on extracting oxygen from the air; some on breaking down nutrients from food or eliminating waste; others on sensing the world around us and creating new life. All of this occurs as a kind of musical nesting process within the resonating container of the fetus.

In fact, the central goal of evolution – beginning with the very first primordial interaction between light and space – must be to focus energy into harmonically structured life forms that are able to recognize other harmonic forms. Counter to the widely accepted theory that life is a fluke of Nature and guided strictly by natural selection and random mutation, Darwinists need to seriously consider the idea that the universe is predisposed toward increasing coherence through the omnipresent patterning process of harmonic standing waves. Increasing coherence is built into the very fabric of spacetime even while entropy works to take it apart according to the second law of thermodynamics. The proof is all around us, as the following story illustrates.

*One morning, a small woodland creature wakes up and begins his daily hunt for food. Somewhere else, a truck driver wakes up and gets ready to haul a new load down the highway. Stopping first for coffee and fuel, he enjoys the beautiful sunrise as he drives. But then, as he rounds the corner he sees a small animal in the road up ahead. With no time to react, he hits the innocent creature and in a tragic instant transforms him into another road kill statistic. Repeated over and over, this is the sad story of how vehicles kill an estimated one million vertebrate animals a day (one every 11.5 seconds) in the U.S. alone.*

Yet while each road kill event appears to be just another random occurrence in a hostile and uncaring world, you might be surprised to learn that they all occur in a very predictable pattern. If we were to add up the distances between each of the road kill on the highway and sort them by distance inside a spreadsheet, we would find they tend to approximate a probability curve known as a *Poisson distribution*. The more road kill we measure, the closer it will fit into the same curve. And, if we could measure the road kill everywhere in the world at any given moment we would find an almost perfect match to the Poisson curve! How could this be?

As it happens, the Poisson distribution is a special case of the Gaussian distribution, which, as we know by now, is the spectral interference pattern of harmonics. So, this story is really telling us that the physics of harmonics is a guiding property of time –

*no matter how random something may seem.* It is also telling us that the second law of thermodynamics, which defines entropy as the decaying (or damping) principle of Nature, should be amended to recognize the counterbalancing effect of reflective resonance in periodic systems. Harmony should not be ignored or avoided.

In the case of the woodland creature and truck driver, their very thoughts are guided by a universal harmonic pattern shared between their brains, which may in turn be locally synchronized by moving together through spacetime. While more experimental evidence is needed to prove such a claim, my own research and other recent studies do suggest this.

During the 1980's, I was surprised to learn that brains operate together harmonically. While analyzing large libraries of electronic documents in a search engine I was working on (ironically named *DARWIN* for *DATA* Retrieval With *INtelligence*), my engineering team found that the frequency of word occurrences would *always* sort into a Poisson distribution. We found this to be true regardless of language or subject matter – even computer languages fit into the curve. It was just after this that it finally dawned on me that anything I or anyone else ever said *or thought* would always fall into this universal harmonic pattern after a minute or two, as long as it was semantically coherent.

So it is that each and every human brain thinks basically alike, expressing his or her thoughts through the shared harmonic pattern of language. As I pursued this line of inquiry in later years, I found many other studies to support it, including how neurons always fire in a Gaussian wave through the brain and how brain waves can be translated into musical harmonies for use in brain therapy. [12, 13, 14] The evolution of the brain must have been guided toward coherence over time by harmonic patterns in the overall body and the structure of space itself.

### ***Consciousness as a property of spacetime***

Perhaps the best evidence of Nature's predisposition toward coherence is how starlight becomes a harmonic standing wave as it travels through space. While light leaves its source as a spread spectrum mix of electromagnetic radiation, it becomes more coherent and harmonic over time. This is due to the fact that as it travels through the quantum lattice of space, enharmonic frequencies are gradually suppressed and filtered out, leaving only harmonic frequencies in a single wave front. The farther the light travels from its source, the more it approaches the shape of a perfect plane or standing wave. Lasers work the same way.

As light bounces between two mirrors inside a laser cavity, it also travels a great distance through space. And just like starlight, the lattice structure of space filters out all fractional or enharmonic waves, thus 'focusing' the light into a single frequency wave. So, when laser light is released as a beam, it is really a powerful blast of harmonic wave partials riding on a single fundamental frequency of color much like a vibrating guitar string. And like a guitar string, laser harmonics can even be separated out by over-resonating whole number multiples of the fundamental frequency, as is often done these days to create exotic higher frequency lasers at a lower cost.

Now, since we can consider life to be a crystallized form of light, it too must become more coherent as it travels through space. We might even describe a living body to be a slow motion biological laser that focuses energy between its two reflecting halves; thus, becoming more harmonically tuned over time. When you think about it, a living being is just a resonating liquid crystal made mostly of carbon and water, becoming more coherent and more focused as it rides on the Earth through space.

From this perspective, spatial movement should really be considered the first principle of evolution, since it focuses (or

grooms) life toward greater efficiency, greater mobility, greater balance, greater intelligence and ultimately greater consciousness. Like the gravitational pressure that ignites a star at a certain threshold of mass, logic tells us that it must be the movement of life through space that strikes the match of consciousness during the evolutionary process. From this spark of self-awareness, it is then the two reflecting halves of the brain (like mirrors in a laser) that holds the fire and keeps it burning.

One theory of the brain suggests that this reflective process creates a neurological hologram within which we recognize and interpret the world. Proposed in the 1980's by neurosurgeon Karl Pribram in cooperation with quantum physicist David Bohm, holonomic brain theory describes cognition and memory as a holographic interference pattern produced by two coherent sources (two eyes; two ears) which act like lenses. Identical in principle to the interference patterns produced by a split-beam laser on holographic film, this theory describes cognition as a simple and efficient pattern matching process between the outside hologram of the world and the inside hologram of the brain. [15]

Extending this to include harmonic theory, we can explain how our brain measures and identifies objects through geometric proportions and pattern matching. In fact, each one of the principles of Gestalt psychology – continuity, regularity, simplicity, stability and unity – can be explained by the natural patterning of harmonic standing waves as they manifest in human physiology. The Reflective Interference Model, describing the physics underlying harmonic formations, provides a much-needed template for both holonomic theory and Gestalt psychology to describe how our brain interprets, measures and predicts the outside world.

But if our brain is a harmonic resonator made of light, focused into consciousness as it evolves in space and time, might the phenomenon of conscious self-awareness be a preexisting property of space? That is, could consciousness exist independent from physical life and simply be "tuned in" by the resonant interaction of our liquid crystal brain with the quantum space lattice?

As incredulous as this may sound, the brain may not be much different from those old crystal radio sets back in the 1960s, picking up and transmitting certain frequencies through the quantum field of space based on principles of resonance.[16, 17] After all, as our brain thinks, quantum mechanics tells us that the electrons making up our thoughts are constantly taking "quantum leaps" in and out of this spacetime. This suggests that our brain may be acting as a kind of quantum transceiver with our thoughts under the influence of non-local quantum effects.

According to quantum entanglement, thinking cannot be entirely local or physical, but instead able to exist anywhere in the universe or even outside of spacetime. The electrons of our thoughts do this by "tunneling" across the so-called Higgs boson boundary into some other place millions of times a second, where they could be affected or influenced before returning. According to quantum physicist Evan Harris Walker, non-local quantum effects could determine how electrons group together on a particular set of neural synapses before firing OR inexplicably cause them to land elsewhere in the brain, leading to an entirely different thought. [18] So while our body and brain may be harmonic like everything else in the universe, our mind must resonate beyond spacetime.

All joking aside, human beings might simply be semi-autonomous biological robots under the remote control of a higher self. Given our current understanding of physics, it is really not that farfetched to think that we could be guided by impulses transmitted and received via quantum leaps from some other realm. Our concepts of free will, creativity and personality might well be a glimpse into this other realm, resonating through to us from space as subtle patterns in the liquid crystal antennae of our brains.

## Harmonically guided social evolution

As life evolved into reflective self-awareness, primitive tribal societies evolved into complex civilizations. Guiding this social evolution were the many physical archetypes of harmony and balance apparent in the natural world. Translated from abstract forces into the stories of personified musical-astrological gods and symbols, mankind first based its laws and governments on the physics of harmonics. Unified over 2,500 years ago by Pythagoras in a philosophy known as *musica universalis*, ancient civilizations found order and a noble purpose in harmonic science (Fig. 24).

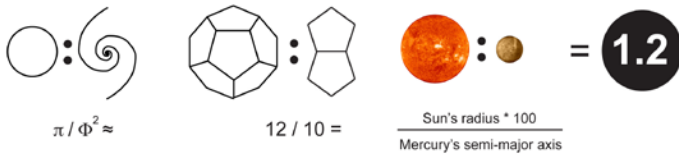


Figure 24. Harmonic symbols that once guided social evolution.

Yet today, this musical theory of everything is nowhere to be found. The harmonic models of Nature no longer guide our understanding of how things came to be as they are or what their purpose might be. Instead, natural selection or divine intervention are the only reasons we give ourselves to explain the magnificent order and beauty we see around us. We live in a world defined by theories of creation and life that completely ignore the central role harmonics play in all things.

If mankind is to survive within a universe of natural laws, the truth of harmonic evolution must one day be rediscovered and accepted. When it is, the artificial barriers between biology, anthropology, psychology, acoustics, physics and all other fields of science will come tumbling down like the Berlin wall. Life will be seen as part of a whole and harmonically unified universe, falling under the purview of harmonic physics and described by musical philosophy. The quantum effects of subatomic harmonic systems will become central to all biological and medical research, leading the world toward any number of unimaginable advancements.

And as society's thinking shifts, Western religion will change too, transforming into great temples of natural learning. The Gnostic study of sacred geometry and musical proportions will once again infuse our culture with a respect and appreciation for Nature. Everyone from the staunchest atheist to the most dogmatic fundamentalist will no longer deny the truth of a coherent, harmonically structured universe and the life inside it.

Today's neo-Darwinian view that "restarting life on Earth (or another planet) would turn out completely different" would be replaced by the deeper realization that 12:5 geometry is as much a universal constant as the circular resonance of  $\pi$  or the square damping action of the golden ratio, woven into the very fabric of space itself.

With the reintroduction of universal harmonic laws, we will also know that life is evolving in other harmonically balanced solar systems and that it cannot be too much different from our own. We will finally understand the cosmos as the purpose-driven incubator for life that it really is. Maybe then we will be ready to take the next critical step in Nature's harmonic progression - *peaceful coexistence*.

## 8. Summary

We can no longer ignore the overwhelming proof of quantum effects on electrons and the established role of harmonic resonance and damping in the magnetic fields that contain them. Biologists and anthropologists alike need to accept these new truths and find a way to embrace them in their theories about life.

To make this happen, geneticists and physiologists must lead the way by acknowledging the importance of geometry, cymatics and the role of gravity in the structure of DNA and anatomy. Psychologists might also contribute to this new vision of life by considering the possibility that perception is first and foremost a function of physics and that consciousness likely operates beyond the brain under the influence of quantum effects. Change can only come when our most brilliant scientists and educators stop looking only for differences and begin looking for commonalities.

The greatest strength of Darwin's theory of evolution is its ability to explain the diversity of life through random gene mutation and selection in a hostile environment. But this is also its greatest weakness since it cannot explain the commonality of life as found in the overwhelming presence of 5-fold endoskeletons and 3-fold exoskeletons in the fossil record. Only a theory founded on the physics of harmonics can explain this and provide a complete picture of how life evolved on Earth.

There are few absolutes in this world, but one of them is definitely the fact that a harmonic standing wave will always resonate into the same spectral interference pattern no matter what medium it travels through. Harmonic patterns truly are the grand scientific musical template for all coherent systems in Nature, repeated over and over in all things, especially life - yet, they remain completely ignored and written off as happenstance by modern evolutionary theory.

As long as this doctrine is in effect, people will never know what they have in common with the rest of Nature. As long as Darwin's theory of evolution remains incomplete, so do we. Let us all open our minds to an evolutionary theory guided by the physics of harmonics, yet adapted to the environment.  $\Omega$

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