

# Visualizing Information as a Dynamic Entity Roadmap of Deep Science, AI and Humanity



**A K Mukhopadhyay<sup>1\*</sup> and A S Mukhopadhyay<sup>2</sup>**

<sup>1</sup>North DMC Medical College, Delhi, India

<sup>2</sup>Visiting Faculty for Design, Avantika University, India

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**\*Corresponding author:** A K Mukhopadhyay, North DMC Medical College, Delhi, India

## Abstract

Visualization of information as an autonomous intentional potent causal entity, which has a dynamically changing geometry across the depth of nature remains a valuable leading guide for extending the vertical depth of science. Following this thread of information in its various forms, it is possible to travel imaginatively across the ladder of cognition from physical signal to the world of sublime wisdom and back from the wisdom to signal world. This seems to be the First step in doing Deep Science. Understanding of the systems psyche and four abstract operations therein are crucial for this. This paper describes this roadmap for Science, Technology and Humanity.

**Keywords:** Visualization of Information; Systems Psyche; Information Mechanics; Information Holograph; ZPE state; Healing and Information

## Introduction

### The limits of present Science-The way out

The Systems Psyche is a hub of information. We do not have a science for this. This would be a Deep Science with concurrent growth of Science, Humanity and Spirit (human consciousness). The scientists are in the process of extending the horizon [1] and vertical depth [2] of present science. In this pursuit, the Spirit (consciousness of the scientist) remains the guiding force. Science, however, is seen stuck with Einstein's constant (velocity of light), Planck's constant (of space, time and energy) and Entropy barrier, which respectively excludes simultaneity of events, continuity of events and identity of events. These three constants of physical science maintain the limits of horizon and vertical depth of present science and often felt as stumbling block for laying down foundation of a science for consciousness.

The prized technology of present age is Artificial Intelligence and the involved scientists are human beings and surely not the created humanoids. The interrelationship of artificial intelligence, human intelligence and intelligence in nature-consciousness has been described in author's earlier works [3,4]. Artificial Intelligence has found its future in use of Neural Network, DNA chips and in Synthetic Biology. This trust, however, misses the points of tripartite neuro-astrocytic-neuro synapse in the brain, also the fact that the wisdom of DNA molecules resides in its association with spherical histone protein. The synthetic biology at present stage assumes that synthetically created artefact

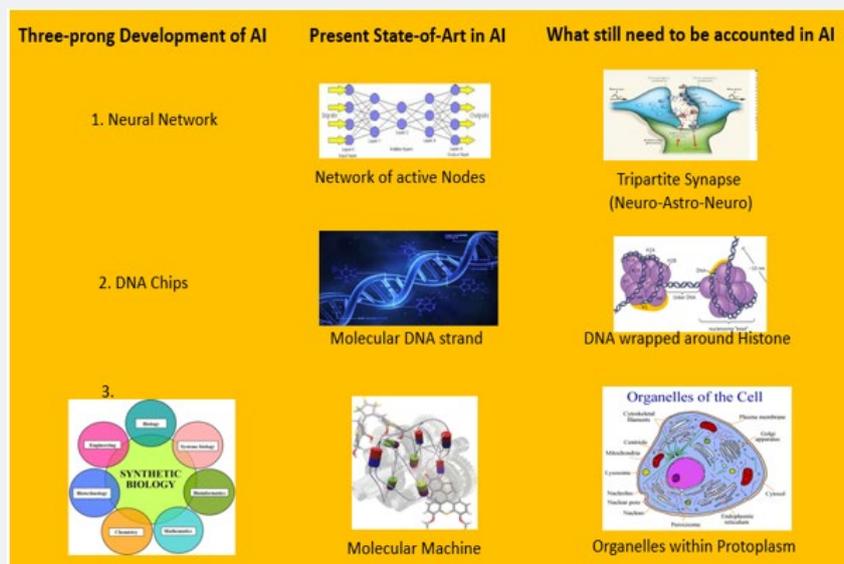
is merely an automated ensemble of several small molecular machines and misses the point that the natural cell is an autonomous integralizing systems of several organelles operating under the umbrella of universal holonomy.

Conjugation of quantum physics with biology, computer engineering with biology, cybernetics with biology have resulted in offspring disciplines like quantum biology, computational biology (and computational neuroscience), cybersemiotics (information, cognition and communication in life), for examples. What we are lacking for helping to blossom of all such disciplines fully, is a science of information for which one needs to look at sub-Planckian scale of nature and cellular functions beyond molecular and signal network. One has to uphold a radical view of information [5] where information is a dynamic entity and connect this science of information [6] with systems science of physics, chemistry and biology (Figure 1).

The wise biological cell, the common origin of our body, is not merely an automated machine but an autonomous complex system [7]. All the cell functions of a cell are not within the framework of algorithmic pre-specifications! The cell exhibits property of intention, choice and will, all of which are designated as high-level cognitive functions! Therefore, the question arises, at what point and on what occasion the cell asserts as an autonomous live entity and starts controlling, modifying and using automated molecular and physical signal network to its own advantage? Sure, the cell

does so regularly, and that is why a cell can rejuvenate and redefine itself, adapts, grows and evolves. Cell's operations are ideology neutral, solution-centric and holistic, where all its organelles work for a common goal. At its defined level of autonomy, which followed accomplishment of this kind of perfection in automated signaling, we are still left with the questions such as what is the occasion when we, scientist, get exhausted with molecular cell signaling to explain any specific cellular function of intention,

choice and will? Where are we stuck and look for alternative and new option when the physical signaling system within the cell falls dumb consequent to breakdown at certain point of the chain? When and where are we pushed to the wall to accept the existence of some new operation like of "mind" to understand cellular functioning and are compelled to invite consciousness of cell for explanation in doing Deep Science!



**Figure 1:** Three-prong approach for developing AI has been shown on the left column of the figure; neural network, DNA chips and synthetic biology. The present state-of-art is shown at the centre. What is yet to be taken into the fold are the facts that most decision-making synapses are tripartite in nature, relationship between histone and DNA, DNA is wrapped around histone, and organelles, which operate within the protoplasm of the cells.

This occasion, this wall, this exhaustion begins to appear on the way while the cell has to read the meaning of a signal and convert it into information and vice versa! Signal remains as useless space-time construct of energy without spelling of what it speaks about, and the cell is not able to make sense of the signal! Subsequent to this, there are several steps, non-observable and not easily explainable by molecular mechanisms, but are essential for cell maintenance, growth and functions! For example, how cell, from this meaningful information, develops its base of knowledge systems, and from knowledge systems cell develops its precious experience? Further, how the wise ones sublime their experience and treasure it as cellular wisdom! What are the operations involved in such process? In the context of cell maintenance, what senses the breakdown of signal network and calls for an examination of the systems by self for application of mind with appropriate repair tool? The answers to such questions are not easy for the present cell biologists and such queries compel us to dive into deeper depth of nature which at present is in a non-observable realm! In other words, we are exploring the area how and when does cell's information systems is taken over by cell's Mind, Self and Consciousness to control molecular cell signaling and physical signal network? We are exploring the ladder of cognition [8] in Deep Science!

### From the Space-Time Construct of Information to Non-Observable Domain

#### Semantic information, Gödelian information, information manifold and information crystal

By manipulating information and creating new information 'life' accomplishes its uncertainty-certainty homeostasis. Information is the language of nature. Language is created in the domain of psychology but observed as one of the behavioral expressions. Psychology operates in non-observable domain, while behavior is in the observable domain. Ontological hierarchy of different geometric forms of information is in non-observable domain while when it is expressed as signal becomes visible in the observable domain! The elementary players in the non-observable domain (consciousness, self, life and mind) are non-local by nature while elementary players in the observable domain (space time, matter and energy) are constituents of local science. Information thread connects the observable local domain with non-observable non- local domain. Therefore, psychology and behavior perfectly relate with visualization of operation of information across the depth of nature. This pursuit is likely to enrich our understanding the layers between neural signaling and consciousness, also the layers between prevailing national laws/ rules and the collective conscience of the nation [9], and the layers

between initiation and end-point success of a designer while preparing a new “Ap”, holding user experience at the center. A few examples of observable and Non-observable domain in connected disciplines have been shown in the Table 1.

Bioinformatics, in its present curriculum is too fragile to bear the burden of exploration of information! Computational cell Biology too is limited to encoding, decoding and recoding the bits, working on the basis of Boolean logic. Its scope seriously

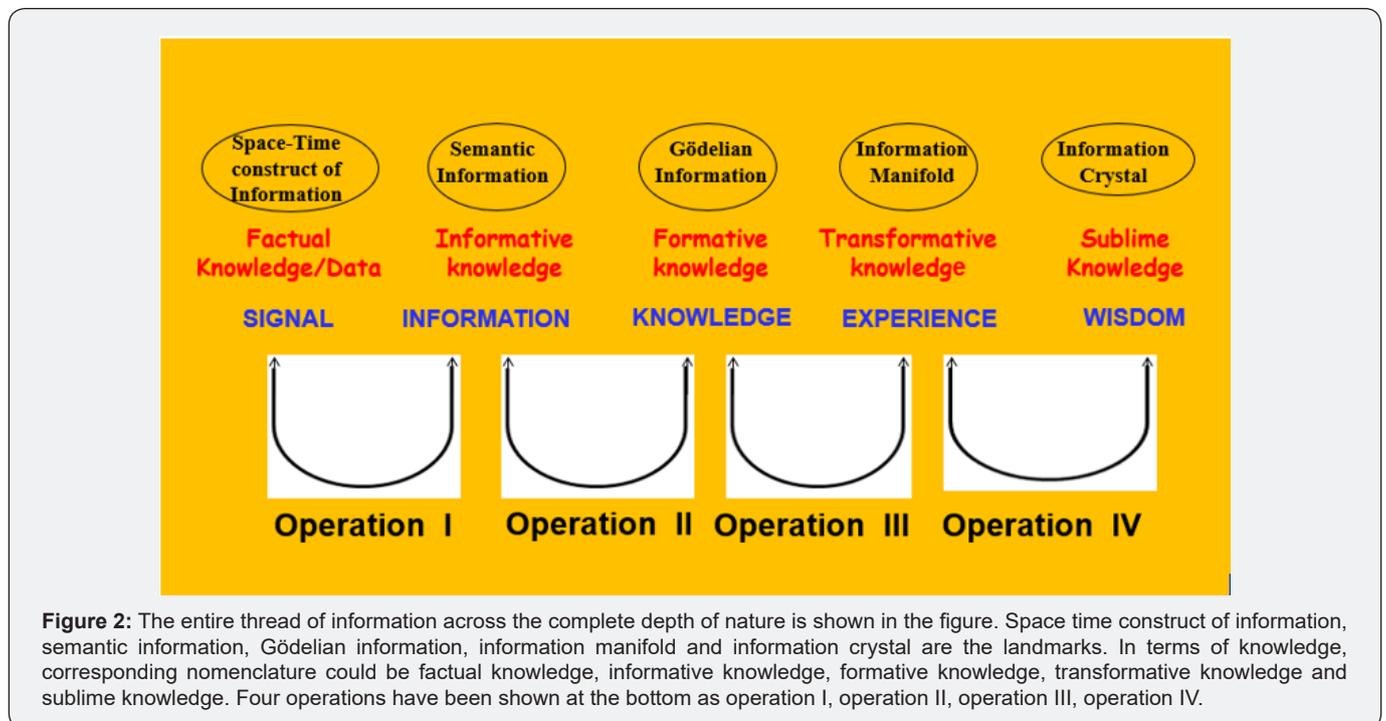
lags behind the fuzzy logic, is far behind the formal logic and remains farthest from inferential logic! Thus, both the discipline of bioinformatics and computational biology (computational neuroscience too) is incapable of visualization of information in continuity. Their scope is limited to visualization of space time construction of energy as information structure, which ultimately is a kind of signal, waiting to be read for meaning by some yet-to-be described operation!

**Table 1:** The table shows six examples of interconnected disciplines on the left column and their non-observable and observable domains on right.

Connected Disciplines	Non-observable Domain	Observable Domain
1. Psychology & Behaviour	Psychology	Behaviour
2. Discipline of Law & Nation’s Conscience, National values	Conscience, Values, Ethics Aesthetics, Attitude	Laws and Rules of the Land
3. Neuroscience & Consciousness	Consciousness, Mind, Self	Neuronal Signalling
4. Architecture and Design	Design	Architecture
5. Signal & Information	Information	Signal
6. Dark Energy & Visible Energy	Dark Energy	Visible Energy

While doing Deep Science in the non-observable domain, the meaning of information appears as mental image as what is called semantic information (Figure 2). This is the first operation (Operation I), which does this conversion of signal into information. This leads to a new beginning! Next, several interrelated information joins together for depicting the ‘whole systems information’. This phase of information remains in the form of a formatted whole, which could be called Gödelian Information! Following Operation I, this action is executed by another yet-to-be fully described operation (Operation II) at

the abstract level. Deeper in the nature, such holistic formatted information is stored in compact condensed patterns. This pattern formation and storage with easy access for retrieval is executed by another yet-to-be fully described operation (Operation III). The pattern of storage may be described as the pattern of information manifold. Information manifold is nested within the mine of wisdom by another yet-to-be fully described operation (Operation IV). In the mine of wisdom, information phase is that of a crystal! (Table 1).



**Figure 2:** The entire thread of information across the complete depth of nature is shown in the figure. Space time construct of information, semantic information, Gödelian information, information manifold and information crystal are the landmarks. In terms of knowledge, corresponding nomenclature could be factual knowledge, informative knowledge, formative knowledge, transformative knowledge and sublime knowledge. Four operations have been shown at the bottom as operation I, operation II, operation III, operation IV.

**Access to the Deeper Recess of Nature**

Consciously, we do have occasional access to such deeper recess of nature-consciousness,

- i. During intuitive spell,
- ii. During deep non-dream sleep,
- iii. Or, while passing through some meditative trance

- iv. At zero-point energy state of the brain
- v. Or, by some yet unknown mechanism (e.g., what accomplished spiritualists call grace phenomenon),

leading to a phenomenon of information gain by the systems brain. The gain might be in form of semantic information, Gödelian information, or as a fraction of information manifold! This exercise depends on the integrity of the brain as the accessor at classical, quantum and phenomenological level, on how does the integrated brain transforms the experience of this access respectively to semantic information, Gödelian information and the received fraction of information-manifold into a sensible signal, the space time construct of energy as information, through downward causation mechanism [9] inside the brain! Access to (the mine of) wisdom requires another level of integration of the brain when it becomes totally conducive for Mother Nature, nascent nature, which acts as the kinetic facets of consciousness. The net gain in this access is the gain of new information

**Importance of New Information Gain**

This new information gain is important for

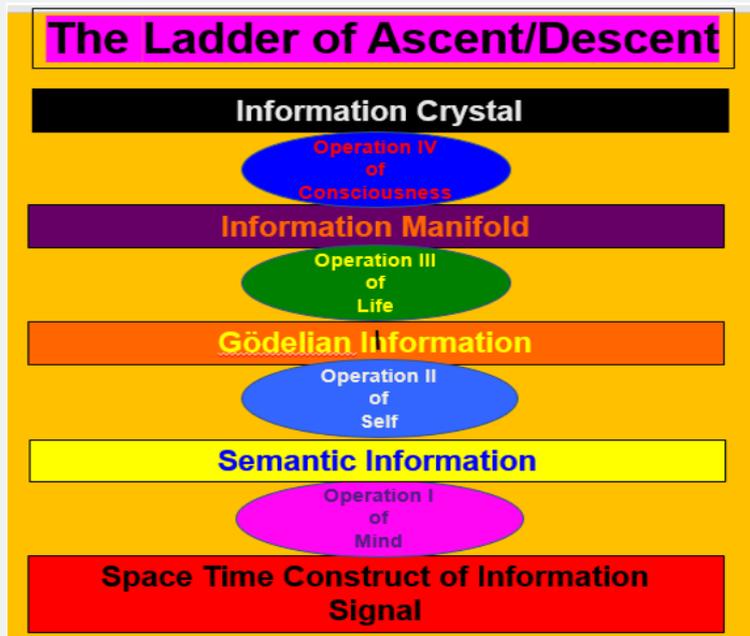
- i. Doubt clearance, therefore, for better understanding and consolidation of knowledge. New information leads to expansion of horizon and vertical depth of science.
- ii. Alleviation of different kinds of uncertainties in life. Information reduces uncertainties and in consequence alleviates different kinds of fear.
- iii. Beginning of a new chapter in Self-Directed Learning (SDL).

- iv. Igniting dormant faith, kindle devotion and enliven love and compassion for others.
- v. Self-directed biological transformation (SDBT) [10].

**Characteristics of the Deeper Recess of Nature-Consciousness**

We have described four operations numerically which are hierarchically nested in deeper and deeper recesses of nature-consciousness. Working in this domain of nature is not easy for the following reasons. In this recess of nature,

- i. It is difficult to develop mathematical equation. Here, the term “equation” could be replaced by relationship and the term “integration” could be replaced by “integralization”!
- ii. Here happens a fusion of epistemology and ontology while doing science. The operators are indistinguishable from their operations and the operations here are identified with specific operator.
- iii. As stated, there are identifiable layers in the domain, which are nested, hierarchically stratified, often appear labyrinthine.
- iv. Individual autonomy of the causally potent operators works within a universal holonomy. In other words, individualism in this domain is bereft of any rift or discordance with universalism.
- v. Instead of Force and Energy, the operations are carried out by Intention and Will.



**Figure 3:** For the sake of completion of the proposition, the ladder of ascent/descent has been placed vertically with incorporation of operator along with the respective operation.

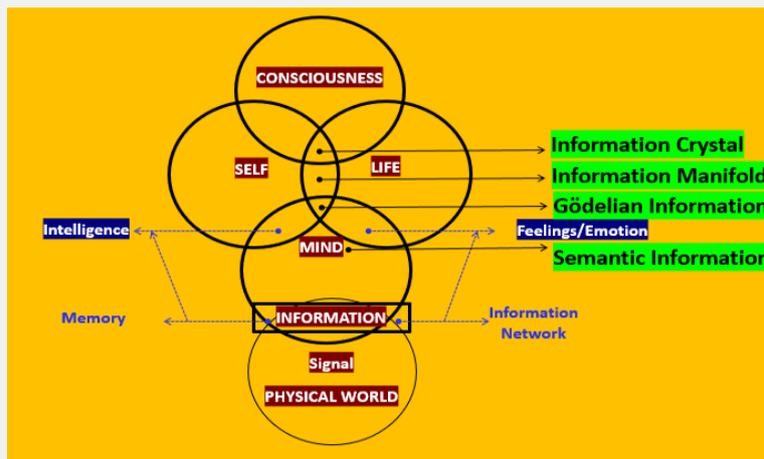
**What are those Operations?**

As said, the operations are yet-to-be fully described with scientific jargon. During this emerging pattern in the complexity [11], across different civilizations and by intersubjective consensus the operator for operation I, in all likelihood, has been called Mind, operator for operation II Self, operator for operation III Life and operator for operation IV (Figure 3) Consciousness. Mind, Self, Life and Consciousness have been ascribed to have many other functions at the philosophical levels. However, probably the achieved consensus on these functions might help the present science to go into the realm of Deep Science, which

would be surely deeper than DeepMind and Deep Learning as applied presently in AI. This statement is not breaking away from science. In fact, this is a promising attempt to extend the vertical depth of systems science.

**Systems Psyche**

The players in these recesses of nature are Information, Mind, Self, Life and Consciousness, which individually are all potent causal autonomous agents and together form an orchestra (Figure 4), the decision-making organ, the systems psyche [12], connected systematically with the physical body through information-signal transformation!



**Figure 4:** The intersections of orbits of autonomous, causally potent agents such as Information, Mind, Self, Life and Consciousness are shown to be orchestrated. In other words, this is the systems psyche. This is the room for phase-meeting, -coupling and -conjugation. Note the respective place of semantic information,

Systems psyche is not omnipresent. Systems psyche is a discrete entity. Its three constituents, consciousness, life and information are omnipresent. Mind appears only with duality. Self, as particulate, is the representative of consciousness within the discrete system. That is why the self and the mind are so precious for the systems. The outcome of joint operation of self and mind along with memory is the system’s intelligence!

Those who are still not ready to buy such arguments and are really averse to use words like mind, self, life and consciousness in science, might pursue with the details of the four operations as such for the growth of science, and who knows soon they might develop technology as a machine, equipment or devices which could respectively convert signal into semantic information, semantic information into Gödelian Information, Gödelian Information into Information manifold, and information manifold into Information crystal! This is the Road ahead with Task ahead in harnessing the sub-Planckian nature for advancing Artificial Intelligence (AI). The key to this pursuit is in visualization of Information as an Entity.

**Visualizing information as an entity is different from information visualization**

Information visualization has emerged as a separate discipline. How information, which could not be visualized, be represented

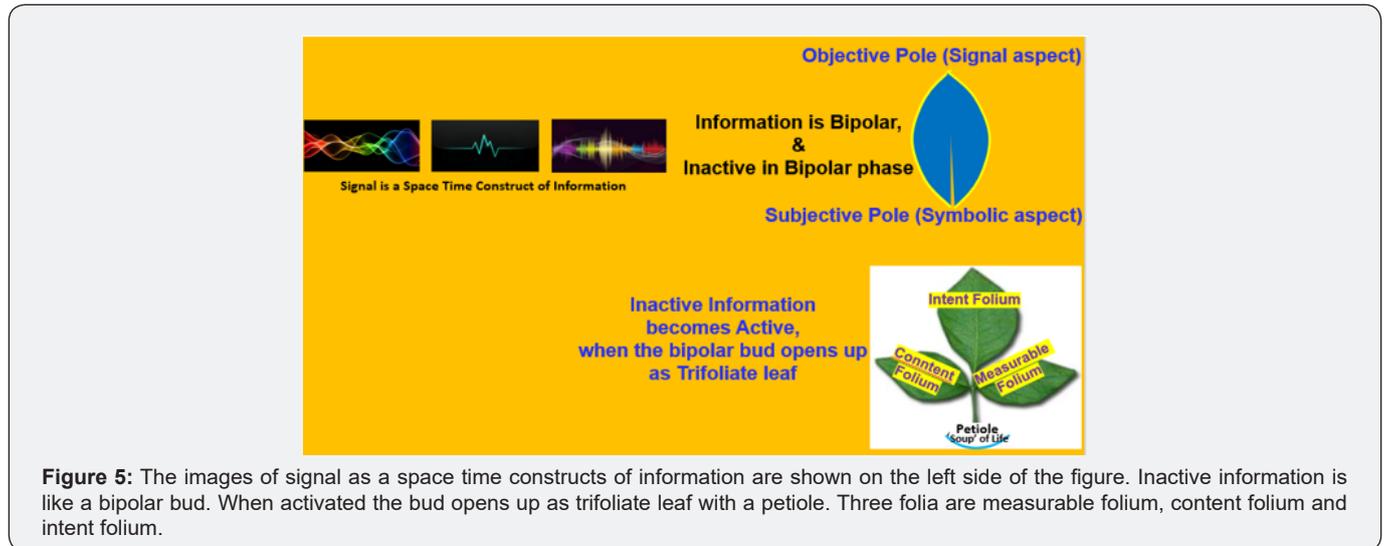
as understandable symbol, design, architecture, figures, sketch, graphics etc., is the concern of this discipline. There is a journal [13] titled “Information Visualization”. Information visualization should be distinguished from visualizing information as an entity. Accepting the subtlety of information and its distinctness from energy, the research agenda can be build up on an assumption that information has an existence independent of matter, energy and space and time, which could be found in the nature beyond Planck’s scale!

David Bohm distinguishes matter from mind only on the basis of explicate and implicate order! His Quantum Potential includes information! Information is expected to be integral of d’Espagnat’s “Ultimate Reality”, which is independent of, and posterior to mind-matter distinction. Why not information could also be traced to *unus mundus* of Carl Jung? Since 1990, following John A. Wheeler’s persuasive argument to learn about the world by looking at it in term of information, effort has been made to find out the underlying relationship between quantum mechanics and information. On its 125<sup>th</sup> anniversary, July 1st, 2005 issue of Science highlighted several questions for which we do not have any answer. One such important question is, “Do deeper Principles underlie quantum uncertainty and nonlocality? “The subtlety of information has been recognized by Hawking and Penrose from the fact that information can pass through black hole, while light

cannot! Recently David Chalmers has pointed out information might be relevant in assessing the level of reality which is more fundamental to both mind and matter. Bernard J. Baars in the theatre of consciousness finds the workspace of the Mind with Primacy of Information [14]. "Information is a prime commodity, and when it is used in biological theorizing it is granted a kind of atomistic autonomy as it moves from place to place, is gathered, stored, imprinted, and translated" [15]. "Life's origin may only be explained through a study of its unique management of

information. ... Our work suggests that the answer will come from taking information seriously as a physical agency, with its own dynamics and causal relationships existing alongside those of the matter that embodies it." (Paul Davies in *The Guardian*, 13 Jan 2013). We might recall that "In the beginning was the Word, and the Word was with God, and the Word was God." (New Testament, John 1:1). In *Mimamsa*, one out of six Philosophical schools prevalent in Indian Darshan, it has been said that matter has come out of Information {*Padartha* = Pada (word) + *Artha* (matter).}

**Visualizing information as a dynamic entity**



**Figure 5:** The images of signal as a space time constructs of information are shown on the left side of the figure. Inactive information is like a bipolar bud. When activated the bud opens up as trifoliate leaf with a petiole. Three folia are measurable folium, content folium and intent folium.

Signal, although carrying meaning inside it, requires to be read by a reader for the meaning it carries. One signal could be read as having multiple meanings read by one reader in multiple states of mind or by multiple readers at different states of mind. Signal could be visualized (Figure 5) as cycle of energy in space per unit time, but information could not be visualized yet in the same sense! Information at this stage could be visualized through a flowing imagery following the sub-Planckian nature with a specific direction of its content and intent in a specific context with a situation-embracing goal.

Signal-information conversion i.e., reading and extracting meaning from information's inside, involves Operation I, which in this imagery has been called the operation of mind. Max Planck once wrote, "Science....means unrestingly endeavour and continually progressing development toward an aim which the poetic intuition may apprehend, but which the intellect can never fully grasp."

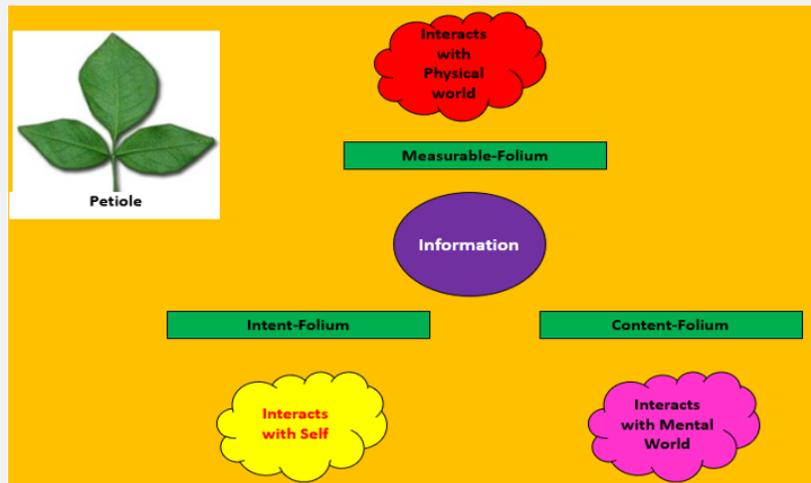
This mind operation has been described below with a poetic vision!

*I was looking at my Mind!  
Between Me and Infinity,  
Often distinct, often an ever-fading line!  
It is my Mind!*

*Passively, on itself it winds.  
In action, it grows mighty wings.  
Between Finite and Infinite  
An amazing swing!  
It is my Mind.  
One day Information approaches her,  
With passion, aggression and intense desire!  
In his captivating charm, she submits to conceive.  
Through nonlocal communication she perceives  
A command to deliver 'Form',  
Which is Information's inside!  
  
The play of Love, Sex and Aggression,  
Happens outside scientist's box of vision  
What one observes are only quantum fields!  
Measurable entity, within scientist's skill*

*Born are Energy, Time and Space.  
Visible children from Infinity's mess!  
There are Fields and all the more  
Energy and matter, a gala furor!  
Scientists get busy playing with them.  
Conceals Infinity, how It so became!*

This information is semantic information, which has a measurable aspect (in terms of reduction of uncertainty) in the observable domain of the physical world, and a content aspect and an intent aspect in the non-observable domain. Many scientists (e.g., Robert Jahn) have imagined semantic information as bipolar, with a subjective pole and an objective pole, or having the symbolic pole and the signal pole [16]. This bipolar information is inactive.



**Figure 6:** The image of active information as trifoliate leaf with a petiole has been elaborately shown. Measurable folium interacts with physical world, content folium interacts with mental world and the intent folium interacts with self.

When activated, the bipolar bud 'opens up' as a trifoliate leaf (Figures 5 & 6). Its measurable folium operates in the physical world, content folium works with the mind and intent folium works with the self. The petiole of the leaf remains embedded within the 'soup' of life. Life manages uncertainty-certainty homeostasis by manipulating information or creating new information. Semantic information is thus connected with all operators within the systems psyche except consciousness.

Now look at the poetic vision of what could be called Gödelian Information!

*Trifoliate semantic information!  
Of different size and shape with a unified passion!  
Packed in a spherical whole!  
With meaning, intent and common goal  
Of the Gödel's whole!  
Petioles of leaves on the surface of the sphere.  
Folia packed inside with special care!  
The dynamic sphere bathes in life's soup!  
"Incompleteness" is completed in complicated loops,  
In sub-sub-Planckian nature, which holds  
As piles and racks, Information manifold,*

*As father, grandfather*

*And, great grandfather*

*Of signal visualized by senses!*

*With some energy expense!*

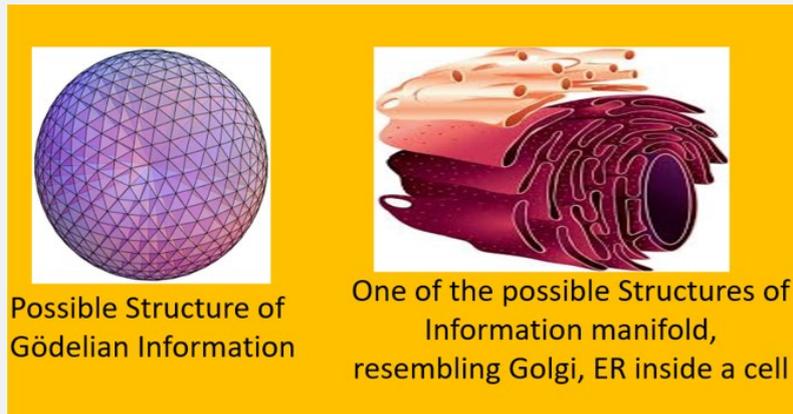
*As non-sensical entities descend in senses!*

No information is an island. Several meaningfully related semantic information makes up the information of the systems whole. This holistically formatted total information of the systems could be called Gödelian Information! Gödel's incompleteness is completed in Gödelian information with operation of life. Numerous such systems exist in the world and for every system there is a system specific Gödelian information. What could be its structure? Is it in form of a small box consisting of a number of trifoliate semantic information? While we often relate the whole with the shape of a sphere, the Gödelian information could have a spherical globular form! A number of meaningfully related semantic information are packed into a compact mass of sphere where folia are inside the sphere and the petioles of all semantic information are on the surface of the sphere to draw nourishment from the 'soup' of life (Figure 7).

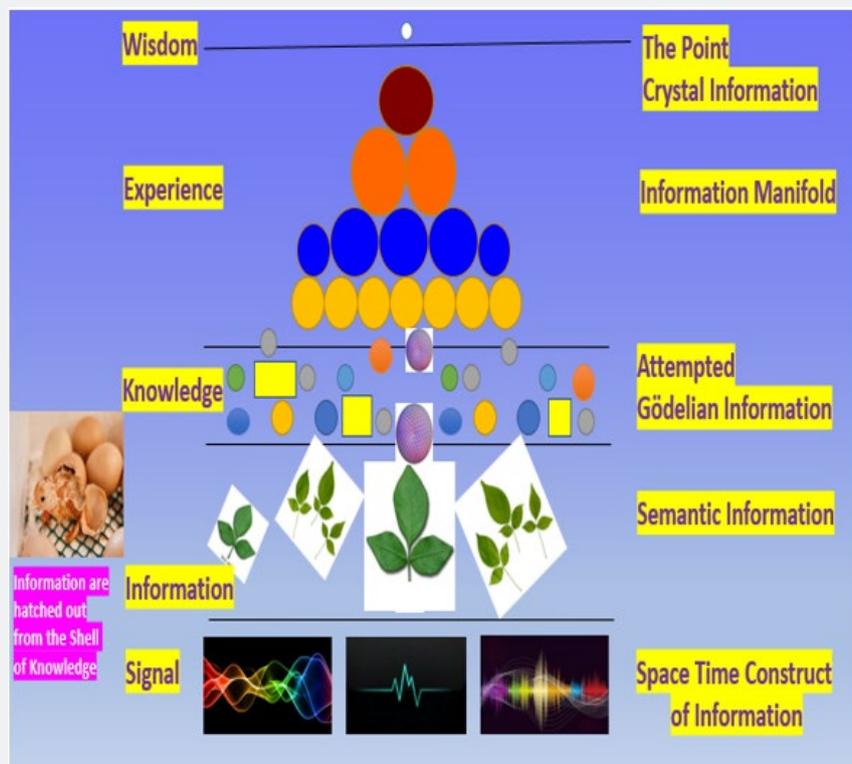
As shown in the Figure 4, in the phase of Gödelian information, there is coupling or intersection of Feelings/Emotion (mind, information, life) and Intelligence (self, mind, memory). Next, visualize the information manifold, far deep in the recess of

nature! As said, no information is an island! Information are piled up, organized one upon another but in an easily retrieval way, aggregated but segregated, stacked and packaged in innumerable but different orders (Figure 7), and in differently shaped premises as boxes, spheres etc., might be like the layers of clouds around 10- 12 km height from the surface of the earth, or arranged like  $10^{11}$  stars in a galaxy, or like  $10^{11}$  galaxies in our universe or like 1011 neurons in our brain, might be following the rules of fractals or some other pattern! It is all over the universe, more

condensed in interstellar and intergalactic voids and vanishing in inter-universal void. Our imagery finally culminates where all possible spheres in the real world-wide-web of information manifold extend just short of the level of multiple universe(s) and are reduced into one single Point in the mine of Wisdom across the boundary of the universe as Information crystal (Figure 8). This Point of information crystal is accessible from everywhere and at every time!



**Figure 7:** Gödelian information is most likely spherical. It has packed trifoliate semantic information with petioles on the surface, bathed in the soup of life. Information manifold can take numerous shapes of boxes or flat layered structure as seen in Golgi apparatus, Endoplasmic reticulum (ER) inside the cell.



**Figure 8:** The entire dynamism of information geometry across the depth of nature has been shown in this figure. Note how information is hatched out from egg shell of knowledge! Trifoliate semantic information is packaged in various form of boxes and only a few of those contribute to form spherical Gödelian information. Towards the Top, all spheres are reduced to a Pont, the Point of Wisdom. During manifestations, spheres of experiences are generated from the Point of Wisdom.

## Information Mechanics

Since information is intentional, it has a mechanics of its own [17]. In size information, which is a subtle entity and an identity in phase, is smaller than that which can be measured in Planck's scale. Information is also categorically different from energy. Information, unlike energy, is neither generated nor emitted as quantum, and therefore, its dynamics is different from quantum mechanics.

Information mechanics is a mechanics of waiting. Inactive information waits for activation. Information could wait for eons, for millions of years. Activation opens up its opportunistic property. Information mechanics is a mechanics of opportunism. Information is opportunistic. Therefore, imperatively, it is slow, patient, and intelligent. Its dynamics are nonlinear. Information, in opportune moments, asserts causal execution. Information works as the causal executive. The systems undergo changes according to input, output, or reassortment of information within. Informational link, therefore, represents the causal link. Information loss explains the break in the causality chain. Information mechanics is also responsible for what we observe as creative emergence. Information reorganizes space and time bringing a new meaning and a new context. Finally, the mechanics of new creation is inextricably connected with information-mind mechanics by which a new "form," a new space and a new time, come out of information.

What activates inactive information? Following possibilities are suggested.

- i. Spontaneous activation is possible, but rare.
- ii. Activations by quantum fields (and infinity/mind)
- iii. Activation by a specific state of self/consciousness
- iv. Activation by life-principle remain clear possibilities.
- v. In a self-organizing system, activation probably could happen when the self is tossed into a life-or-death situation in the existential terrain.

In the pre-space, pre-time domain information waits patiently and intelligently to get carried away on the vehicle of a "quantum" (and, this is responsible for phenomena of quantum puzzles and paradoxes) and looks forward to getting accepted in a receptive system where it can perform causal execution or can bring about creative emergence. The most creative function of information is displayed when it takes the opportunity to impregnate a prepared and receptive mind, or mind-like structure and process in nature. This results in delivery of new space, new time, and the information-based energy.

## The Tasks Ahead

The imagery of dynamically changing geometry from the signal frequency to the point of wisdom has been described. The effect of these non-observable phenomena could be observable in cellular protein infrastructure, which supports the ladder of information, knowledge, experience and wisdom inside the cell.

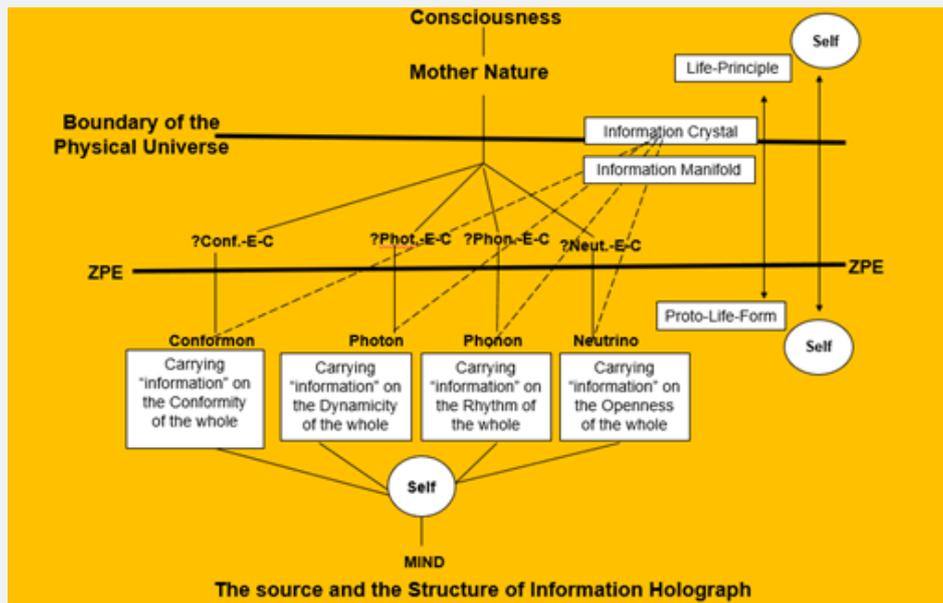
The detail of this has already been described in my earlier paper on The Ladder of Cognition [8]. In brief, at the molecular level, signal molecules are mostly protein with primary structure. "Informational" molecules are proteins with secondary structure. "Knowledgeable" proteins have tertiary structure. "Experienced" proteins have quaternary structure. "Wisdom" proteins are spherical (e.g., histone) proteins.

Nothing is, however, free in this world! Any process while active consumes or releases energy. During the process of ascent through the ladder, from signal to information, information to knowledge, knowledge to experience and experience to wisdom, there is conversion of visible energy into dark energy. During descent through the ladder there happens the reverse; the dark energy is released as visible energy. There is involvement of zero-point energy state with the life-form during all such conversion. Our view on this process has been described in the paper on Zero-Point Energy State of the Brain [9].

## Does Information have a structure in Observable domain?

Does information have a structure in observable domain? The answer to such question boils down to Information Holograph [18]. Information is non-observable, but its image is represented at the quantum domain as Information Holograph by an extraordinary constellation and harmony in working of Einstein's Photon, Leon Cooper's Phonon, Ilya Prigogine's Conformon and Wolfgang Pauli's Neutrino. In the new emerging Worldview, these four are the phenomenal hands of Mother Nature, the nature working as an extension of Consciousness. Between observable and non-observable realms of nature is the zero-point energy (ZPE) state of nature. ZPE is the meeting ground of physical world, biological world, psychological world and consciousness. On the deeper side of ZPE, Neutrino, Conformon, Photon and Phonon are not identifiable as such. However, those may be identified as Neutrino-equivalent of Consciousness (Neut.-E-C), Conformon-Equivalent of Consciousness (Conf.-E-C), Photon-equivalent of Consciousness (Phot.-E-C) and Phonon-equivalent of Consciousness (Phon.-E-C) respectively (Figure 9). It is plausible that 'vehicle' of quantum wave/particle is acquisitioned when information on conformity with the whole, dynamicity of the whole, rhythm of the whole and ever-openness of the whole descends into the physical, biological or psychological system through ZPE (Figure 9).

Linguistic expression is a part of behavior. Information is the language of nature. Information is the unit of communication. At the language level, the seriousness of the linguistic expression is represented by Photon. The rhyme of the language, the punctuation, is created by Phonon. Conformity with the whole in the message is executed by Conformon. The context of the message is created by Neutrinos. Having had this ever-openness, neutrino could alter the context and therefore the meaning in the message for any number of times and in this way, it manifests the sense of humor in the expression. Neutrino is the first laughter of nature and could be considered the last laugh of consciousness.

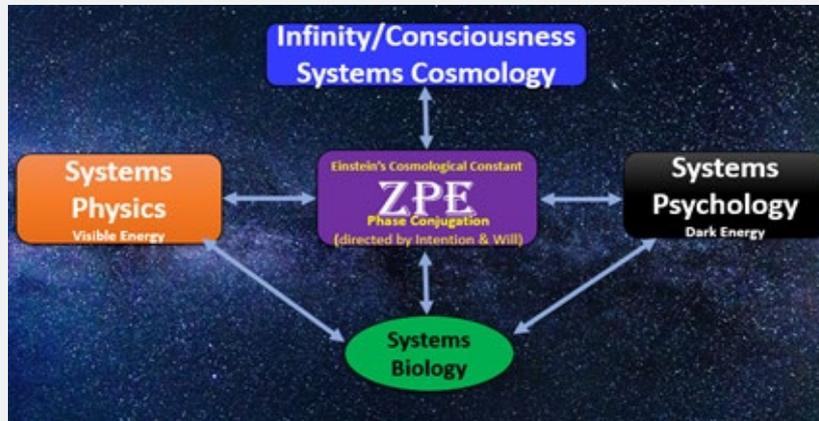


**Figure 9:** The structure of Information Holograph. This is an extraordinary constellation of Conformon, Photon, Phonon and Neutrino centred around Self, system's consciousness. Conformon maintains conformity with the whole. Photon carries the dynamicity of the whole. Phonon conveys the rhythm of the whole. Neutrinos keep the holographic system ever-open. Within the boundary of the universe, Information Holograph starts forming across ZPE and operates within observable plane.

**Zero-Point Energy and Physical-Biological Coupling**

Besides visualizing information as an entity and four abstract operations, the paper brings the Zero-Point Energy (ZPE)

state into sharp focus, which emerges as the central pivot of transdisciplinary research [19]! Psychology, Physical science and Biology intersect with Infinity/Consciousness at ZPE (Figure 10).



**Figure 10:** ZPE is the point of meeting, coupling, conjugation and fertilization of systems physics, systems psychology, Systems biology and systems cosmology. The most probable mechanism is phase conjugation. Systems Physics are driven by visible energy. Systems psychology is mostly driven by dark energy. Visible and dark energy are balanced by systems biology. The verticality in the process seems obvious since the coupling, conjugation and fertilization are driven not by any force or energy but by intention and will which comes from vertical depth of nature (Infinity).

To solve the physical-biological problem in the context of the brain, there are radio reception theory of Henri Bergson and television analogy of George Wald, both theories are successful in physical-physical coupling, not in physical-biological coupling. The device that harnesses cold night sky to generate electricity in the dark is an example of physical-physical coupling. The idea of direct air capture (DAC) and carbon capture and utilization (CCU), where carbon is captured from carbon dioxide in the air and used

for making petrol is also basically a physical-physical coupling. Aldous Huxley used to think that the brain is a biological reducing valve, which in present science may be signal transduction, which is based on the process of informational molecules working within the protoplasmic soup. The physical-biological coupling has been tried to be explained by the role of photon in photosynthesis or by bacteria which feeds on electron. These are examples of physical coupling with chemical substance working within the

environment of life-soup. Since 98% of atmosphere of Mars constitutes carbon dioxide and Mars might have 'life', scientists are thinking of growing food there with CCU technology. From our proposition, the common nodal point is at ZPE, the site for cross fertilization of systems physics, systems psychology, and systems biology and systems cosmology. Edgar Mitchell, the sixth man who walked on the moon, was fond of the phrase, "phase conjugation", "phase coupling" across ZPE. ZPE is the room for phase meeting, coupling, conjugation and fertilization. One can note that there is more verticality in such conjugation; quantum-subquantum-sub-sub-quantum across the depth of nature, which is directed not by any energy or force but by "intention" impregnated within the information, and "will", which is prerogative of consciousness or system's self. The first coupling of physical world with the psychological world is observed as conversion of signal into information, which could not be executed by any equipment, device or machine except what we have called "mind", the operator of operation I.

### Concluding Remarks and Perspectives

If one has to extend the vertical depth of science, the best option is to follow the imagery on information as stated in this paper. Visualizing information as an independent dynamic entity is the key to have access to nature's rich deeper recess, which strengthens the foundation of a science for consciousness. During such journey, one comes across several research frontiers in neuroscience and neuropsychology; several levels of integration of brain function, mechanism of doubt clearance, alleviation of uncertainties and fear, mechanism of initiation of self-directed learning, ignition of faith and initiation of self-directed biological transformation, which would be more clear when we concentrate in this virgin territory on those four operations, I, II, III and IV.

Competitive aeronautics and space research have already come forth in the frontier of international science. Scientists have been exploring moon, planet, hyperspace! However, space craft is controlled and guided by signal only. At the occasion of failure of communication with the landing robot during one such adventure in space (as happened on 7th of September 2019 during landing on the moon by India's Chandrayan-2), what the scientists could do except experiencing the pain of heartbreak? The space scientists do not have any other option since they are familiar with communication through only signal. They do not have any device, equipment, instrument (except probably human brain), which have access to information-as-such! Dramatic influence of this proposition might be seen in designing suitable Artificial Intelligence with devices, which could respectively convert signal into semantic information, semantic information into Gödelian Information, Gödelian Information into information manifold, and information manifold into information crystal and vice versa!

In the Search for Extra Terrestrial Intelligence (SETI), radio astronomer Frank Drake's equation of the year 1961 estimates the odds of finding intelligent life in the universe. The equation

has a number of variables, many of which are not exactly known [20]. The equation's causal closure is at the physical signal level. We might wonder how to incorporate 'intention' and 'will', the driving agents of any operation in deeper recess of nature, in such promising equation! As mentioned, this paper brings the Zero-Point Energy state into sharp focus, which emerges as the central pivot for highest level transdisciplinary research involving information science, neuroscience, psychology, cell biology, astrophysics and cosmology! This frontier remains open for developing suitable technology to harness ZPE. In search for science of information, the human brain remains a live model to emulate! Two papers referred in these articles have profound roles in science of healing. Information holograph [18] could help to develop the science of "Pranic Healing". Neutrino-brain interaction has been discussed there. Ten research hypotheses have also been made with which one could start the Deep Science of healing. Zero-point energy state of the brain [19] is a regenerative state of brain and is important for restorative neuroscience and whole-body healing. Psychotherapy, cognitive therapy, being therapy, information therapy is all related to manipulation and eradication of troublesome information operating in the mind of the subject with the help of ZPE state of the brain or dissolving it in the inter-universal void. Noteworthy cautioning words are information, in any form, is the last obstacle at the gateway of unconditional consciousness where even the wisdom dissolves.

Finally, this paper is expected to be a great stimulant for the science of design as well as behavioral economics. The paper offers the entire design of a science of information; information structure, its dynamic geometry, its operation. The paper has a design of psyche as the interphase between systems-bound and systems-independent consciousness, and also a design of what could be an information hologram. The paper speaks of the designing capacity of ZPE. Many designers think that all these designs are consistent with the design of the systems of multiverse, The Multiversity.

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