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Synthesizing a Behavioral Language from Cellular Geometry

by

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Is there a universal structure for categorizing, identifying and synthesizing data, and if so, what scientific data makes it possible to arrive at such a conclusion? Secondly, what are the implications of such an all-pervasive structure for the cognitive and behavioral sciences?

There is indeed ample scientific proof for the ability to universally categorize data, beginning with the geometry of a cell. Furthermore, detailed empirical research indicates that it is possible to form a philosophical behavioral theorem that forms the basis for a powerful and valid methodology for cognition, interpreting problem solving and handling matters of conflict resolution. Using a multidisciplinary approach, this paper will demonstrate the scientific and philosophical evidence for such a universal structuring of data categorization, after which it will be possible to synthesize a concrete behavioral/ cognitive language applicable to any situation.

Dr. Derald G. Langham, a graduate of Cornell University and contemporary of Buckminster Fuller, developed The Genesa Concept. A brilliant geneticist working with plant cells, Langham discovered what he called the living geometry of a cell. His geometrical model was based on title-specific principles identified during the creation of a cell. The model contains three parts, which are pulse, wave, and spiral. Cell development first begins with 180 degree polar pulses within the seed. The initial pulse is oriented north to south, followed by an east to west pulse at ninety degrees to the original pulse, forming the classic X/Y axes of the Cartesian coordinate system. The final pulse is a front-to-back motion, forming a three-dimensional Z axis. This completes the cell's Creative Phase of development.

The cell then explodes into a wavelike motion, attaining a maximum radius, or expansion point, in each direction of the three axes. The six wave motions complete the Organizational Phase of cell development.

The third and final stage of cell development is the Functional Phase, in which the cell begins to spiral, specifically at its corners. The spiraling impacts four points within the cell, best envisioned as a neutron spiraling around the earth, touching both poles and two opposite points along the equator.

The result is thirteen aspects of cell geometry: three in the Creative Phase, six in the Organizational Phase, and four in the Functional Phase.

Of paramount importance to the model is that each phase clearly demonstrates the property of polarity in the 180 degree movements of the pulse, wave, and spiral patterns. Each phase shows that the cell incorporates the idea of opposition during all stages of development (e.g., north-south, east-west, back-and-forth). This concept of polarity will figure prominently in behavioral applications extrapolated beyond the geometric model of the cell. Figures 1, 2, and 3 (drawings from pages 117, 118, 119 of the dissertation) display the face, edge, and corner positions as they would appear in line drawings of the three-dimensional structure of the model. By representing the cube model balanced on one of its corners, a Yin/Yang polar orientation is demonstrated.

While working with Dr. Langham, I believed that his model offered a wide variety of applications that required a language capable of describing it for practical utilization and implementation. My own language would evolve into Natural Thinking and Intelligence, or NATI, in which I identified thirteen universal intelligences that correlated perfectly with the geometric model.

Creative Phase (The famous mathematician/philosopher Pythagoras utilized these principles in his philosophy as did Thales.)

- Awareness (Focus)
- Beliefs (Concepts)
- Communication (Expression)

Organizational (These are principles derived from principles of mathematics, as well as laws of rules of natural sciences)

- Laws (Models)
- Parts (Details)
- Order (Processes)
- Assessment (Measurement)
- Reflection (Mirroring)
- Synthesis (Wholeness)

Functional (Psychologist Carl Jung implemented these principles as a basis for his behavioral model. They are the basis of the Meyer-Briggs personality test)

- Physical
- Mental
- Emotional
- Intuitive

This basic matrix is an application model that provides the means to take an issue or problem, define it, and then explain and investigate it from the standpoint of each of the interrelated principles, or intelligences. I deem them “intelligences” since I believe they contain the property of universality that will be described later. Such universality has been advanced by numerous philosophies through the ages, with the attendant belief that a universal energy suffuses the universe, an energy that has both personality and intelligence. At an international conference of astronomers in the early 1990’s it was declared that 92% of the universe is composed of an undefined substance. This belief has been widely held by Eastern and Western religious and philosophical disciplines for centuries. It can be seen in the beliefs of Lao Tzu and Taoism, as well as Judeo-Christian thinkers such as Teilhard de Chardin, who believed in a cosmic merging of all human action with divine consciousness. More recently, cosmologists such as Fred Alan Wolf have expressed a belief that a singular wave frequency permeates the entire universe.

But is it possible to move further than philosophical, mystical, and theological claims, however valid and logical they may appear, to a totally scientific approach that allows us to apply with confidence the thirteen movements inherent in cell formation to much larger systems, such as the human brain? Can we show that there is complete justification in applying the tenets of the Genesa Model to the behavioral sciences in order to arrive at pragmatic ways of problem solving and decision making? Many scientific disciplines show that such a bridge between cellular geometry and cognition not only exists but demonstrates with complete confidence and clarity that the thirteen intelligences are the most elemental and productive ways of approaching quite literally any behavioral issue.

Behavioral/geometric connections can be found as seen in the ancient Buddhist symbols such as the mandala and the yantra. These were concepts depicting the geometry of the subconscious intuitive mind.

A Symbolic Model of Comprehension

The question of how the NaTI Principles were adapted from the cellular development process can be addressed from several prospects. One of them is the adaptation of Biological Principles into Human Behavioral Components. Below we identify and convert microbial Principles into Human Behavioral Factors.

Examples of Microbial Intelligence

- 1) Formation of biofilms (slime) requires joint decision by entire colony.
- 2) Under nutritional stress bacterial cells can organize themselves so as to maximize nutrient availability.
- 3) Bacteria cells reorganize themselves under antibiotic stress.
- 4) Bacteria cells can swap genes between members of mixed species.
- 5) Individual cells can coordinate to produce complex structures.
- 6) Populations of bacteria use quorum sensing to judge their own densities and change their behavior accordingly.
- 7) For any bacteria to enter a host cell, the cell must have receptors. Some bacteria can enter by virtue of possessing their own receptors.
- 8) Under rough circumstances, some bacteria cells transform into endospores to resist heat and dehydration.

- 9) Numerous microorganisms have the ability to overcome being recognized by the immune system as they change their antigens so that any defense mechanisms directed against previous antigens are now useless with newly expressed ones.
- 10) An intelligence cell contains a component, which is capable of collecting and integrating a variety of difference and unforeseen signals as basis of problem solving decisions basis for human systems.

Symbolic Translation to Human Intelligence

- 1) Planning and organizing should include entire group, company and population.
- 2) When business assets and income are suffering, consider all possible resources as relief. – I.e. Assets and Revenue can be leveraged
- 3) If environment is stressful, reorganize.
- 4) Cross discipline use of departments, groups, populations – I.e. Ups
- 5) Individuals within groups, companies, create other interactive structures.
- 6) A group can make decisions and changes without a centralized system as long as it has a means of assessing the number of other components it interacts with and a standard response once a sufficient number of members join the group. This is vital for futurist planning.
- 7) To get to another group, that group must be receptive, by some means-i.e. sales. Those other means can be generated by the initiating group-i.e. rewards, and threats.
- 8) Under bad, poor circumstances, groups should transform themselves so they can resist those circumstances.
- 9) Game changing policies needed to prevent competition from gaining the upper hand, or taking advantage of a company's model.
- 10) Intelligent structures have a component capable of collecting and integrating a number of different and subconscious factors, which can be applied to problem solving and decision-making.

Further, there are hard sciences which proposed connection of science to human consciousness. Foremost here is Roger Penrose, award winning and noted physicist mathematician and philosopher. His books connect fundamental physics and human consciousness. (The emperor's new mind) of course, Einstein's Theory of Relativity opens avenues of possibilities in converting and connecting scientific principles with human consciousness and philosophy.

Here we demonstrate our process in defining the 13 principles of Langhams Cellular Development Geometry. As stated he defines the development process as containing three parts; The Creative (planning stage), The Organizational and The Functional Stage.

The functional and the creative are described on page 2.

To expand, the three principles of this stage also relate to the Cartesian Theorem. Basically, the theorem, philosophical structure is; two opposites interact and create a third entity, which in turn formulate a whole synthesized structure. The polarization process of Langhams model does exactly that. Consequently, any two variant factors or issues will produce a third, which in turn produces a synthesized result.

The six organizational principles, were defined by several applications; namely, principles of math, common sense and Psychological/ancient symbols. Let's take common sense first. Typical factors of organization by many experts are; law, order, parts, whole, and measure. Over 90% of experts (49/54) interviewed by Gilchrist Institute rendered those five (or a form of them) as key organizational factors. The sixth was then based on other factors (feedback).

In so far as the law of math were concerned we established, we established connections with the qualities defined by the experts, plus common sense evaluations.

The results were as follows.

Math Laws	Symbolic Interpretation
Distributive	Detail
Commutative	The orderly Property
Associative	The Group Property (whole)
Transitive	Properties of Equality, measure
Symmetry	Feedback, Reflection
Identity	Comparison operations, models

Of course, the best determinate with Natural Sciences are observation and Empirical input. In over 30 years of implementation, these symbolic representations have held steady and repeatedly produced definable, effective and efficient results.

Rules	Order	Priority	Mirror-Feedback	Total-Whole	Details-Rules
Details	System	Levels	Reflection	Whole	Components
Form	Perimeters	Degrees	Complimentary	Unity	Individual
Laws	Format	Relatives	Response	Entirety	Segments
Identity	Pattern	Emphasis	Interaction	Overall	Separate
Support	Discipline	Intensity	Resonance	Collective	Unit
Basics	Process	Significance	Feedback	Group	Sector
Agenda	Procedure	Comparison		Composite	Segregate
Models		Judgement		Continuous	Subdivision
Principles		Probability		Generative	Parts
		Infinite		Connected	
		Dimensions		Integrate	
		Measure		Synthesize	

The synthesis of a behavioral language from cellular geometry is valid, therefore, from the vantage point of *a posteriori* knowledge. The ability to extrapolate the validity of Langham’s model to behavioral purposes depends on the ability to show its relevance at both the microscopic (or quantum) level and the macrocosmic (or holographic) level. By doing so, scientific data bolsters and mirrors the analogous philosophical models advocating the presence of an all-pervasive wave energy and intelligence throughout the universe, from the smallest to the largest systems. Although many avenues of scientific inquiry might lead to such a conclusion, it is most productive to examine Holographic Theory, quantum mechanics, and General Systems Theory. As will be seen, such an integrative approach will allow us to pivot back to the issue of polarities—the tension of opposing energies as seen in the Genesa Model—and

their usefulness in discussing the relativistic choices presented to all individuals in every facet of daily life by using the language of Natural Thinking and Intelligence.

The quest for this kind of holistic approach to conflict resolution begins with a brief examination of the tenets of Holographic Theory, which is the logical outgrowth of General Systems Theory as described by Ludwig von Bertalanffy and Ilya Prigogine. Everything in our world (indeed, in the entire universe) is comprised of systems. Human biology, traffic patterns, planetary motions, and household plumbing, as disparate as they may seem, are all systems. There are closed systems, in which system components interact only among themselves, and open systems, comprised of components that interact with each other only after receiving inputs of matter, energy, or information from the outside environment. Von Bertalanffy believed that systems were dynamic patterns of organization in which the system as a whole is more important than its constituent parts. Likewise, Prigogine maintained that the hierarchical structures within a system are interdependent on one another, with higher and lower levels within a system being of equal value. The assertions of von Bertalanffy and Prigogine are both consistent with General Systems Theory, which states that a system is a whole comprised of interacting parts. (We shall return to closed systems when we consider behavioral language and NATI.)

Holographic Theory is the clearest model for the integrative approach we seek. Physicist David Bohm believed that not only are system components interdependent, but that they are in actuality all the same thing. The appearance of separateness of system components is, according to Bohm, an illusion since he advocated that all things in existence were part of a higher dimension. Consider a simple holographic picture. A hologram results when a laser beam is split in two, creating a wave interference pattern (a reference beam and the beam that actually strikes an object). The result is a three-dimensional image in which any part of the hologram will reconstruct the entire image. That is, every portion of the resultant photographic plate, no matter how small upon dissection, contains an image of the entire picture. If one examined a holographic picture of a tree, the entire tree could be viewed if one examined a single leaf of the tree under a microscope. In this context, asking which is more important, the leaf or the tree, would be meaningless. The leaf exhibits the process of photosynthesis, which benefits the entire structure of the tree, but the leaf could not have existence were it not for the underlying structures of the trunk and branches. In this example we can already see the principles of component equality advanced by General Systems Theory.

To use Bohm's terminology, reality is composed of both explicate and implicate orders. The explicate order is the physical reality we see all around us. By analogy, the explicate order is an ordinary picture of the tree and its leaves, not the holographic representation mentioned above. The implicate order represents a higher order in which everything is part of a whole. As with a holographic image, the whole is also part of everything. In the holographic domain, every biological organism is representative in some way of the totality of the universe, and each part of the universe represents the reality of the individual organism.

An intriguing parallel exists between Holographic Theory and Plato's Allegory of the Cave, which is part of his Theory of Forms. The allegory postulates men chained to the wall inside a dark cave. All they can see are shadows on the wall they face formed by people or objects passing a fire behind them. Plato believed that reality was most accurately represented by idealized forms and ideas as

opposed to the gross aspects of the material world accessible to our senses. In other words, the true reality is behind the fire, and in this world, men are constrained to live in the dark cave, extrapolating reality from the shadows they see on the backlit wall. Their limited view is projection only. For Plato, true potential lay in this realm of idealized “true” forms in much the same way that Taoism advances that potential (and potential energy) exists in a void pregnant with all possibility. Such a void would itself be yet another way of conceptualizing the implicate order, and it becomes obvious that, regardless of the semantic interpretations of the concept, there is a general agreement across a broad spectrum of knowledge, both intuitive and empirical in nature, that the implicate and explicate orders indicate the unity of components within systems.

This is exactly what Bohm stated in scientific terms. The explicate order—the material world grasped through the limiting filter of the senses—unfolds from the higher explicate order which is a unified whole. The world we see and experience is a mere projection originating in the abstract realm where everything is enfolded and unified. The holographic representation of the leaf and tree therefore represents the implicate order, while any cross-section or piece of the hologram represents the explicate order.

Already we see tantalizing evidence that the Genesa Model contains universality within its structure of pulse, wave, and spiral. Accordingly, the same holds true for the thirteen intelligences associated with the Creative, Organizational, and Functional phases. The model/intelligences are part of the universe, and the universe is part of the model/intelligences. Their apparent separateness, according to Bohm’s logic, is mere illusion. The model/intelligences might be perceived as explicate but are, in reality, part of an implicate structure, a holistic and integrative system that applies in all circumstances and is subject to all conditions imposed upon it.

Holographic Theory is widely accepted in the scientific community and can also be postulated from Stephen Hawking’s work on black hole entropy, although the latter is beyond the scope of this paper. What is more relevant to our present line of inquiry is an extension of Holographic Theory based on Karl Pribram’s investigations into the holographic nature of the human brain. Pribram was a student of Wilder Penfield, who proved that memories were not localized to a specific area of the brain, but rather encoded in all sections of the brain much as part of any holographic picture is encoded in all parts of the larger image. Pribram, like many other researches in the field of physics and brain chemistry, believed that wave energy passing across neurons in the brain causes wave interference patterns. In this cutting-edge model, past memories serve as the holographic reference beam, with new experiences and information interacting with memories stored in various centers of the brain to create the resulting wave interference pattern. Both Bohm and Pribram regard the brain as essentially a frequency analyzer, a lens that converts pure frequency from the implicate order into the mathematical brain waves of our explicate order that references space-time reality as it is normally perceived. It is possible that many who are deemed mentally ill are simply decoding wave frequencies, some perhaps quite legitimate, in a different manner. Normally, however, people perceive the same reality as do others because cultural conditioning produces an extremely relativistic reality in which the mathematical computations of our brains will be quite similar.

Our brains, therefore, are holographic structures within a larger hologram, namely the universe. Given that they are parts of the whole, they have, under certain conditions, access to all information. The brain's computational construct is, in a very real sense, part of a much larger super-computer that can operate at quantum levels of reality to decode the potential of the higher dimension known as the implicate order. As will be seen, this has startling ramifications in the realm of mind sciences and behavioral models (extant in the explicate order), which is the aim of our synthesis from cellular geometry.

As previously mentioned, the extrapolation of Langham's geometric model of the cell must hold for both the macrocosmic world as well as the microcosmic realm, and while Holographic Theory already subsumes the whole and its constituent parts, it is prudent to work in reverse by validating the model's universality through quantum mechanics, which gives us unique insights at the subatomic level.

Quantum mechanics states that a quantum particle has the properties of both a wave and a particle. This is best seen in Einstein's classic double slit experiment, in which light or subatomic particles pass through a partition with two parallel slits before striking a screen behind the barrier. The expectation according to classical Newtonian physics is that the particles should accumulate at points behind each of the slits, but this is not what happens. A wave interference pattern is formed on the screen as represented by a series of uniform light and dark bands since a wave can pass through both slits simultaneously. Hence, we have the classic wave-particle duality of quantum mechanics.

To understand the mysterious ways that particles can behave in the above experiment, we might think of the charts in high school chemistry classrooms, charts illustrating the neat and orderly orbits of electrons around the nucleus of an atom. Such orbits, however, are not found in the quantum world. Rather, electrons exist as wave functions, not particles. Electrons comprise an energy cloud around the nucleus, with each electron having only the probability of occupying a position in the observable world of space-time. This principle of indeterminism is known as the Heisenberg Uncertainty Principle, which is the foundation of quantum physics and departs from Newtonian physics and a world of straightforward cause and effect. In the double slit experiment, the particles passing through the double slits all have an equal probability of striking the screen. Subatomic particles have properties that can be observed in local space-time, but they are simultaneously part of the wave function/energy cloud.

The quantum world therefore exhibits a coherence and integration—whole and part—that mirrors Holographic Theory. This model of quantum mechanics formed by Niels Bohr has come to be called the Copenhagen Interpretation. It was at the Copenhagen Convention of Quantum Theory in 1927 that Bohr introduced his Law of Complementarity as a response to wave-particle duality. Complementarity states the existence of two opposites forms a higher, third level of reality. As we shall see, this law figures prominently in Natural Thinking and Intelligence and the concept of polarity.

Many resisted quantum mechanics as too theoretical—Bohr himself claimed that he could not imagine quantum theory from a point of logic and visualization—and many scientists, including Einstein, criticized the “new physics” as too radical a departure from the Newtonian worldview. Indeed, the Copenhagen school itself predicts the collapse of the wave function based on the Heisenberg Uncertainty Principle. The position of the observer dictates what state matter will attain at the moment of observation,

resolving any uncertainty. This is most clearly seen in Schrödinger's famous cat theory in which a cat is confined to a box containing lethal cyanide gas. The cat has an equal chance of being observed as alive or dead as long as no one looks inside the box. At the moment of observation, however, the cat will either be observed as representing one state or another. The wave function collapses, but this does not pose a threat to our quest for universality of the Genesa Model.

First, we can appeal to the concept of multidimensionality, which is part of General Systems Theory. It accepts that individual parts or levels of a system have their own existence, but only in the context of their existence within a larger community. In the explicate order, people indeed make observations all the time, collapsing the wave function. But this is always done within the realm of quantum probability. The manifestation of matter in a particular state does not preclude its possible existence in other states as well. Quantum theory reveals a basic oneness of the universe. We cannot deconstruct the universe into small, independent units since the world of the subatomic clearly points directly at a web of various parts related to the whole. The fact that, as Bohr and Bohm stated, we cannot actually visualize the implicate order or the quantum interdependence of particle and wave (or an energetic electron cloud of potential energy) is of no consequence. We are dealing directly with the same integrative structure of whole and parts.

Secondly, and even more compelling, is the elementary fact that as soon as an individual makes an observation, he becomes part of the system. The observer himself becomes the observed. The part observes the whole, but the whole always simultaneously observes the part. In the higher dimension that is the realm of all possibility (as in the implicate order), the wave function never truly collapses. A single observation exists simultaneously with all observations and therefore all possible outcomes. The two observational perspectives are never mutually exclusive in the arena of quantum mechanics. This is the basis for the ever-growing popularity of the multiverse theory of existence, postulating parallel universes that are entangled with one another at the subatomic level. Quantum "jumps" between dimensions of reality reinforces the non-exclusivity of observational perspectives even within the Copenhagen school and its predicted collapse of the wave function in our very limited perceptions of space-time. In fact, broadening our perception to include a oneness of space-time brings into focus the role of consciousness and thinking processes in determining a given outcome.

Ironically, Einstein rejected the indeterminism inherent in quantum mechanics. Einstein's General Theory of Relativity, or classic field theory as it is also known, is a deterministic model that views the universe as a series of exact numbers. If one has the correct tools of measurement, every aspect of space-time can be precisely described. Mass and the curvature of gravity can always be defined through the application of the correct set of equations. Einstein adamantly believed that every observation assumes an underlying connection between an observed phenomenon and the conscious perception of the observer. If the basic laws of conventional physics can be ignored, he believed the very act of observation was meaningless. This is the context for Einstein's famous declaration that "God does not throw dice." Neither Bohr nor Heisenberg was able to convince Einstein of the validity underlying the principles of quantum mechanics. As we shall see shortly, it was Bohr who resolved the differences inherent in the viewpoints of Einstein and Heisenberg.

Before applying these concepts to a specific behavioral language, let us summarize the synthesis of cellular geometry with behavioral language. The thirteen aspects of the Genesa model, as seen through the lens of Holographic Theory, are operative across the implicate and explicate orders. The thirteen intelligences named at the beginning of this paper are integrated (enfolding, to use Bohm's terminology) into the implicate order and may be retrieved (or unfolded) in the explicate order at any time. Or put in different terms, the thirteen intelligences will always be operative across time and space. They will always have the opportunity—"the probability," to use the language of quantum mechanics—to be expressed in yes/no, on/off, up/down Yin/Yang fashion. We have therefore arrived at our quest for the universality of the Genesa Model (pulse, wave, and spiral motions and their polarities) and its thirteen aspects that correlate with the thirteen intelligences of Natural Intelligence Theory, which is a system of the whole and parts. The thirteen intelligences are part of a whole, just as the whole is subsumed in each of the thirteen parts. We have total integration of the Genesa Model with behavioral language.

The universality of Natural Thinking and Intelligence opens the door to problem solving for any kind of issue. Problems themselves are universal constants in humankind. Everyone faces hundreds, if not thousands of decisions, every day, and in the explicate order that we are immersed in, we are sometimes going to make positive, constructive decisions; at other times, we will make the wrong decisions because of a lack of relevant information or simply because of our fallible natures. (In NATI, the latter are called Great Restrictors, or fear, ego, ignorance and self-deception.) NATI offers a matrix for overcoming restrictions and weaknesses in the quest to develop our greatest potential, whether that potential exists in the areas of business, sports, health, relationships, intellectual pursuits, or any endeavor one can imagine. It is able to do this because our minds, which reflect the basic organization of the universe, use an underlying language of nature.

Natural Thinking and Intelligence uses the tensions and polarities that we have spoken of previously. The pulse, wave, and spiral motions in the Genesa Model all exhibit the characteristic of polarity. That is, they all demonstrate opposite movements during cellular evolution along the X, Y, and Z axes. This has a direct correlation to the polarities inherent in quantum physics as evidenced at the moment of observation and collapse of the wave function. An observer can determine that an object is black or white, good or bad, up or down. The cat in Schrödinger's box is either alive or dead. People decide that a job is good or bad and accept or reject an offer of employment. A woman accepts or declines an offer of marriage. While it remains absolutely true that the realm of all possibilities always exists at a higher level, our lives are perceived at any given moment as only parts of the whole. By recapturing holistic thinking, however, we remind ourselves of the decision-making capabilities intimated by the existence of a higher level. At the moment a decision needs to be made regarding our behavior, we can step back from the outdated paradigm of determinism and remember that the quantum, indeterminate realm offers us choices built on the concept of polarity. In mind sciences, quantum potential is recognized as a dynamic way to break old habits of thinking. Awareness and consciousness allow us to process information for a variety of purposes, which is the NATI equivalent of the Uncertainty Principle. Using our thirteen intelligences creates a range of possibilities since they have a holistic relationship with each other as well as with their opposites, or polarities. The result is a behavioral matrix of infinite potential.

We have already discussed the difference between open and closed systems in our discussion of Holographic Theory. In NATI terminology, an individual's inner matrix of intelligences and polarities is a closed system since the intelligences and polarities can only interact with one another. This closed system, however, is often compromised by rigid, conformist thinking. It is quite literally corrupted by cultural conditioning. Natural intelligence, therefore, is a closed system, while natural thinking is an open system representing how we actually implement the thirteen intelligences and polarities to bring balance and harmony to the inner matrix for a given behavior or issue.

The intelligences themselves are accessible and easily defined. The first group is the Creative.

- Awareness (Focus) is the brain's recognition of its environment.
- Beliefs (Perception) refer to the way a person interprets reality.
- Communication (Expression) is the ability to present information.

Any creative endeavor inherently involves these three intelligences, from which we derive the Human Character Formula.

$$\mathbf{A \text{ (Awareness)} + B \text{ (Beliefs)} = C \text{ (the character of Communication)}}$$

What we focus on plus what we believe about that focus always equals what we are capable of becoming. This is the most important group of intelligences inasmuch as everything we do (or express) stems from our awareness and beliefs.

The second group is the Organizational.

- Laws (Models) relates to the adoption of an image that works.
- Parts (Details) relates to the ability to perceive separate items and levels of a system in the context of a larger system.
- Order (Processes) refers to how we do things, as well as the procedures we follow.
- Assessment (Measurement) refers to how we prioritize and evaluate issues and events.
- Reflection (Mirroring) derives from the notion that whatever bothers us is a mirroring of something within ourselves that needs attention. This also relates to the principle of feedback.
- Synthesis (Wholeness) is the ability to integrate information into a larger system. (This is the second aspect of intelligences definition).

The Organizational Group represents consolidated elements that point to wholeness and synthesis. In terms of quantum mechanics, one may say that uncertainty is a probability continuum. Any issue that one chooses to consider is connected to one or more of the thirteen intelligences. Answers and resolutions to problems always lie along this continuum.

The Functional Group of intelligences exists because there are only four ways in which the human mind functions: physically, mentally, emotionally, or intuitively. Physical intelligence refers to matter as the visible manifestation of potential energy. Mental intelligence is literal knowledge and the ability to reason and use critical thinking. Emotional intelligence is equated with feelings and desires that motivate us to achieve an objective. Intuitive intelligence refers to the ability to access higher forces and energies that elevate consciousness to a higher level of functioning.

The Functional Group describes man in terms of body, mind, feelings, and spirit. These intelligences are also strongly correlated psychologically to a person's personality type. They are powerful indicators of how people express themselves to achieve goals.

Because the thirteen intelligences are rooted in holographic principles and quantum theory, using Natural Thinking and Intelligence utilizes whole brain thinking, and here we arrive at the heart of NATI's behavioral applications. NATI accomplishes whole brain thinking by focusing (i.e., the first intelligence) on a conceptual issue from the thirteen separate but connected parts (The Second Principle of Intelligence). It then uses the ones related most directly to the issue that occupies one's focus. If we cannot solve a problem with logic, as is often the case, we look at the problem from the perspectives of the intelligences. What are our beliefs about the issue? What are its rules, details, and procedures? How is it expressed and what does it possibly mirror? How does the issue fit into the whole? What are its mental, physical, emotional, and intuitive factors? This is why we say that issues and problems fit within a matrix. The advantage of whole brain thinking is that, rather than being confined to limited data that frustrates problem solving; it has the capacity to deal with opposites. In this context, we have a far healthier and more productive behavioral model to deal with right and wrong, positive and negative, and personal and impersonal in the way a problem or conflict is approached.

Let us once again consider the disagreement between Einstein and Heisenberg. On the one hand, we have Einstein's insistence that accurate measurement leads to a single conclusion that can be understood by an observer. Heisenberg, however, introduced a new matrix for understanding wave-particle duality with equations describing quantum mechanics. Light and electrons could exhibit the properties of a wave, not just a single particle. But at this juncture, we must ask "Who would debate that valid observations are made countless times daily that allow life to proceed as perceived by a normal individual, just as Einstein believed?" All of us, of course, do indeed interpret data according to classical physics, but it was Niels Bohr who brilliantly deduced that there need not be any contradiction between direct observation and the ramifications of the uncertainty principle, which states that all possible observations still exist as probability at the quantum level. It was Bohr's genius that produced the Theory of Complementarity that yields a third possibility not based on an either-or mentality on the part of the observer. To Bohr, the views of Einstein and Heisenberg were not mutually exclusive, just as the implicate and explicate orders do not nullify one another. His ability to move past the determinism of conventional physics while not repudiating Einstein's forms of measurement in classic field theory is one of the most dramatic examples of the kind of whole brain thinking we have discussed.

NATI and Complexity

Natural Intelligence and Thinking (NATI) is an outgrowth of General Systems Sciences. General Systems Sciences represents the integrity of various disciplines into a system for the purpose of synthesizing and organizing systems. It utilizes common principles that apply to various disciplines and systems. It encompasses interactivity in order to find what is *simple*. It does this by its structure classifying all possibilities into three all-encompassing categories: Creative, Organizational, and Functional. Where it falls short is in the realm of analysis. However, the analysis aspect is well covered by NATI in its embracing of Chaos and Complexity Theories, as well as Nonlinear systems.

NATI embraces Chaos Theory most notably by virtue of two components: the Butterfly Effect and Nonlinear Systems. The Butterfly Effect states a small change at one place can result in large differences in a later state. You will see evidence of both this and nonlinear systems in our section titled Genetic/Chaotic Matrix. In this matrix we will envision how a simple system (thirteen principles) evolves to complexity and chaos and back again to simplicity.

Nonlinear Systems relate to numerous equilibrium points, whereas Linear Systems have one equilibrium point at the origin. Actually NATI fulfills both definitions simply because of its holographic, multidimensional nature. Any of the thirteen can be the center of a system while at other times being parts of another centered system. NATI is a general system that can be broadly classified. Whether the issue is linear or nonlinear with NATI, it is stable because it is well-defined. A complex system has some or all of the following qualities.

- The number of parts of a system and their relationship to each other is nonlinear.
- System has feedback
- System is self-organizing
- Relations between a system and its envisions are nonlinear
- The system can be influenced by or adaptable to its envisions
- The system is sensitive to initial conditions

The Genetic, Chaotic, Complex Nature of NATI

The beauty of Natural Thinking and Intelligence is that one may approach its matrix at any point because of the interconnectedness of the thirteen intelligences. NATI patterns bear a similarity to genetic development. This process enables deeper and broader analysis of behavior while at the same time maintaining the integrity of structure (the thirteen principles). Here is a sampling of NATI's Genetic Development.

The Creative Matrix

Awareness

Awareness of Awareness

Awareness of Beliefs

Awareness of Expression

Beliefs

Beliefs of Awareness

Beliefs of Beliefs

Beliefs of Expression

Expression

Expression of Awareness

Expression of Beliefs

Expression of Expression

Incorporating Cultural Characteristics

From here we can insert the cultural characteristics of NATI (or any other system for that matter). Let's utilize the creative matrix again.

Awareness (of awareness) is off

Awareness (of beliefs) is off

Awareness (of expression) is off

From here we expand our matrix to the **Great Restrictors**

Awareness (of awareness) is off regarding fear

Awareness (of beliefs) is off regarding fear

Awareness (of expression) is off regarding fear

We then move into **Core Human Dynamics**

Awareness (of awareness) is off regarding fear and power

Awareness (of beliefs) is off regarding fear and power

Awareness (of expression) is off regarding fear of power

Following the application of all the NATI technological factors to the above matrix development, we have a potential of 129,792 possibilities. If we expand the matrix by another matrix of the thirteen, we then have a potential of 1,687,296 possibilities.

It makes no difference whether you are trying to increase your baseball batting average, choose a spouse, or decide who should take out the garbage in the evening. The thirteen intelligences describe how things work, and that includes all behavioral functions. NATI, therefore, is a technology of understanding

to enhance day-to-day living, solve problems, or resolve conflicts. By using natural thinking processes, people and organizations can more clearly and rapidly identify those avenues that lead to desirable objectives. In the process, restrictive patterns can be altered in favor of reaching higher degrees of potential. This includes the attainment of greater efficiency, effectiveness, balance, direction, growth, discipline, and prioritization. Because human intelligence follows the laws, systems, and properties discussed in this paper, all thought patterns are accessible within this technology of understanding. Indeed, Natural Intelligence represents a methodology for pattern recognition and application.

The Expanded Matrix

The matrix can be expanded even further by redefining Cultural Characteristics (values, ideals, goals, mannerisms, etc.) and Core Human Dynamics (control, power, integrity, uniqueness, attention, self-esteem, and acceptance). Such characteristics and dynamics, which exist in every individual, are not inherently good or bad, but rather may produce healthy or unhealthy behavior, positive or negative results. These characteristics and dynamics are what form the mindset of any individual. Because a mindset is essentially who a person is, it determines his potential or what he can achieve—even the overall purpose of his life. These characteristics are the keys to our life philosophies, as well as a corporate mission, which can become closed and restricted or open and accepting of new paradigms that exhibit positive values and behaviors. In this respect, NATI contains the properties of super symmetry in that it is a framework for theories/models. Individual models of behavior and understanding can be categorized through the NATI matrix.

The expanded NATI matrix therefore includes the following properties and principles in its language of cognitive technology.

13 Intelligences
Polarities
Complementarity
Great Restrictors
Cultural Characteristics
Core Human Dynamics

Examples

Masoets Decision Making Model

This model utilizes two levels of architecture: individual and collective. The two then break down into three levels each. The collective three are: general interaction based on common goals; group interaction based on community goals; and local interaction based on individual goals

Masoets proposes an emotional model that is used in the decision-making process to choose a type of
specific behavior

vs.

NATI decision-making model

NATI Decision-making Model

The decision making encompasses the six organizational principles

- Each of those six are viewed through Cultural Characteristics, Core Human Dynamics, and the Great Restrictors.
- The Final Result (expression) is analyzed functionally (physical, mental, emotional, intuitive)

The Advantages to NATI are:

- Its basis extends beyond the emotional realm of Masoes (to physical, mental, emotion)
- It eliminates the infinity of possibilities, such as a various behavioral factors, by defining a categorical class for those factors.
- Flexibility of its architecture. For instance, if one wished to expand the levels of behavior. With NATI one can.
- Since all the thirteen Principles of NATI are natural to human consciousness, it is more intuitive and simpler to implement.
- It deals with issues on a synergetic basis. Nothing is excluded, and everything has a place.
- It can be utilized for any issue.
- It is simple if all of the thirteen principles are not identified or accounted for. The outcome is then in doubt.
- Other models can be incorporated into the NATI model, but the opposite is not the case.

NEZU Problem-solving Model

The following model of NEZU has five aspects to it. The analysis below describes and compares the model with The NATI architecture.

1st aspect-Problem Identification:

What is the discrepancy between what is expected and what is occurring?

2nd aspect – Problem Analysis: Why is the problem occurring?

3rd aspect-Plan Development: What is the goal? How will progress be monitored?

4th aspect-Plan Implementation: How will implementation integrity be insured?

5th aspect-Plan Evaluation: Is the intervention plan effective?

There are several issues with the model. First is that aspect #3 should be the very first consideration because it relates to focus—the first step in consciousness and NATI. Aspect #5 does not answer anything and has no structure for resolution. Aspect #4 is subjective and unstructured. It doesn't have the components NATI does to implement as the thirteen principles do, the Cultural Characteristics, and the Core Human Dynamics vs.

The NATI model of $A + B = C$

A equates to awareness/focus—upon an issue

B equates to belief/concept—how one envisions/imagines the issue

C equates to character/expression—how the issue is being communicated

The application is then as follows:

A + B always equates to C. Whatever one focuses on and whatever one believes about that focus issue results in the communication.

Therefore, in order to resolve an issue, all one needs to do is look at what awareness/focus is being adapted and what the belief is about it. Then is it being communicated properly. That's it! To go further if necessary, the Cultural Characteristics, the Core Human Dynamics, the Great Restrictors are utilized with each of the three planning components.

The following is a demonstration of how NATI incorporates a self-organizing, feedback, and the explicate/implicate mechanism into its architecture.

Keep in mind that all NATI needs to do to find answers is set any one of the thirteen as the center and then utilize the other twelve to analyze. The following uses the NEZU model as an example once again.

Focus = Problem Identification

Belief = "Discrepancy between what is expected"

Expression = "What is occurring"

Focus=Problem Analysis (Utilize the A+B=C NATI Formula)

Belief-"Why is problem occurring" (Utilize Cultural Characteristic, Great Restrictors, Core Human Dynamics)

Focus/Belief/Expression = Plan Development; what is the goal?

Concept=How will progress be monitored (Utilize six Organizational principles)

Focus/Belief= Implementation Integrity Insured (Utilize Feedback principles)

Expression=Plan Evaluation (Utilize six Organizational and four Functional principles)

It should be noted that in both examples, the NEZU and Masoes Models, they can be adapted to the NATI model, but the reverse is not so.

Summary

It is possible to synthesize cellular geometry into a precise, comprehensive behavioral language known as Natural Thinking and Intelligence. The pulse, wave, and spiral motions exhibited during cellular development produce thirteen polar motions corresponding to X, Y, and Z axes. These thirteen aspects of cell development and their polarities can be extrapolated to be universal motions that can ultimately be used to describe the behavioral technology of understanding known as NATI. The justification for such a synthesis is empirically demonstrated by Holographic Theory and Quantum Theory, both theories revealing a universal tension, expressed as polarities, between the whole/ parts, the implicate/explicate orders, and the microcosmic/microcosmic scales of measurement. The thirteen aspects/ intelligences have been shown to be present in both the whole and parts within any hierarchy or level of existence. It is not surprising, therefore, that Natural Thinking and Intelligence, because of its holographic and quantum attributes, uses whole brain thinking and holistic processes to address any and all issues that have a behavioral, cognitive foundation and application.

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Figure 4

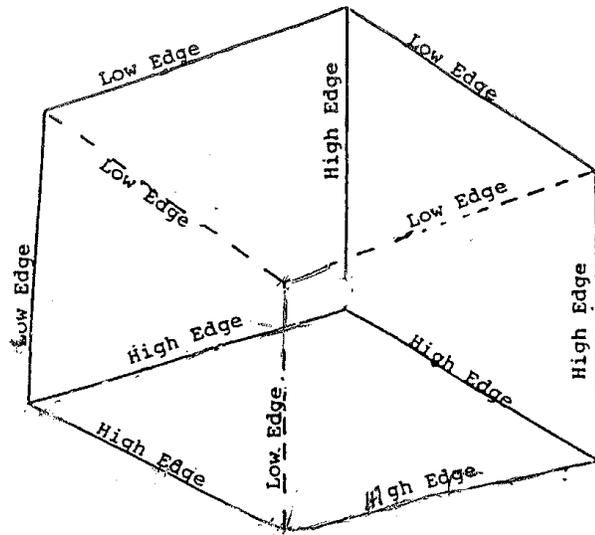


Figure 4. The Six Sets of Yang (High) and Yin (Low) Edge Positions in the Genesa.

Figure 5

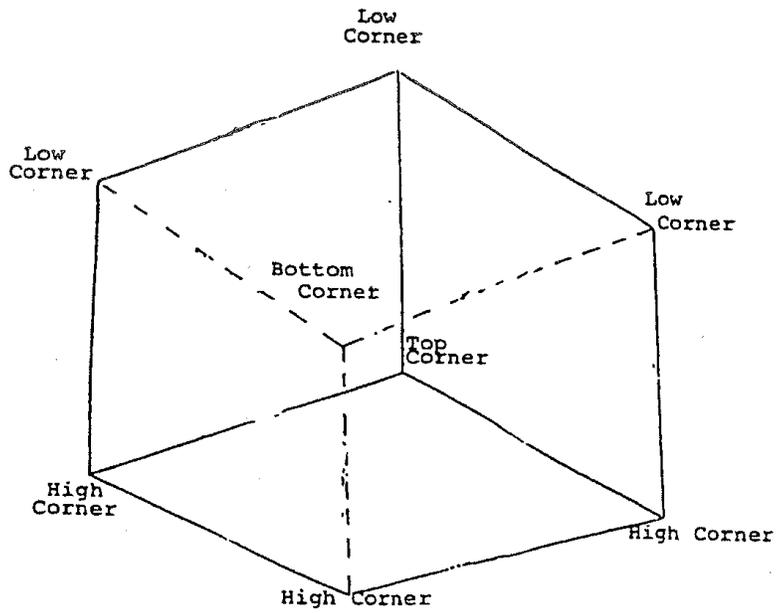


Figure 5. The Four sets of Yang (High) and Yin (Low) Corner positions in the Genesa Model.

Figure 6

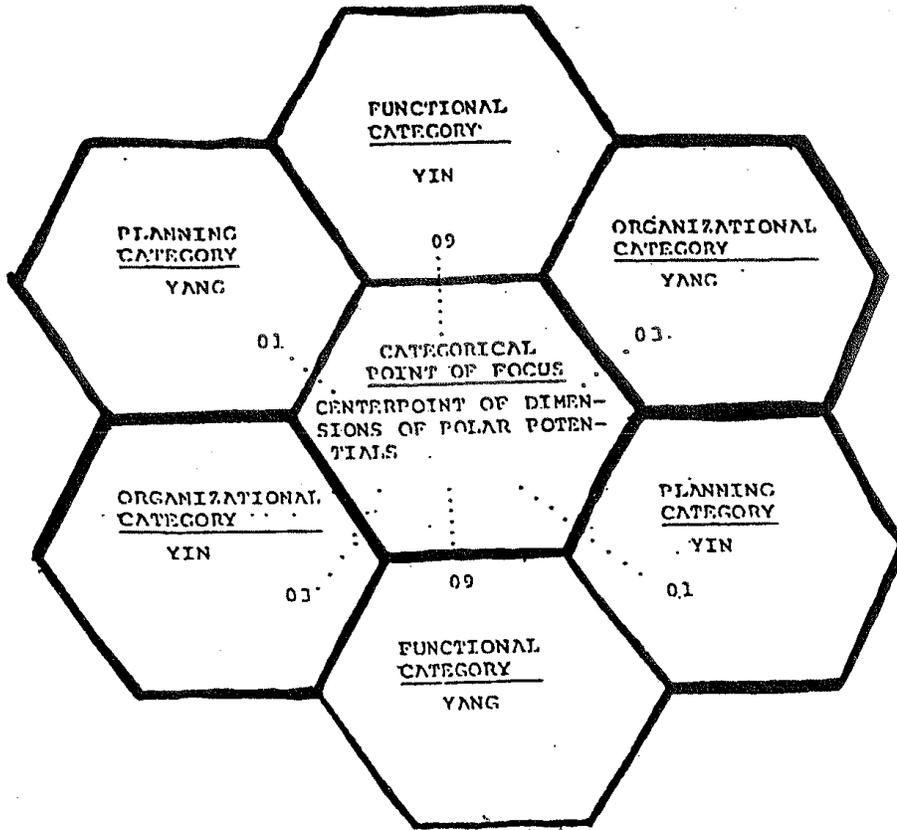


Figure 6. Three Polar Category: Three Polar Dimensions of the centerpoint of inquiry or focus, active in the Systematization of the Potentials, Predispositions Questioning, Activities, Desires, Historical Branches and Methodologies in Systemic Inquiry.