

# Schematization and Nondual Science

## *The Foundations of Holonomics*

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### **From Systems To Schemas**

The main argument for the existence of holonomics comprised of Special Systems, Emergent Meta-systems and Autogenesis has been laid out at a high level of abstraction. Now the question as to what these things are comes to us. Here we are concerned with Systems and Meta-systems and the partial systems or partial meta-systems between them which have such special properties. But if we really want to know what these things are we must widen the scope of our study and consider what a System *is* or what a Meta-system *is* so we can ultimately ask what a Special System ~~is~~. We know that the Special Systems are images of Emptiness/Void as interpretations of Existence, and thus they have no Being per se. But on the other hand if we do not know what the Schemas that have Being are, then we can hardly make progress in understanding what diverges from Being into

Existence and gets interpreted as Emptiness/Void or perhaps ultimately Manifestation. So the general question of the ontological or existential status of the basic elements of our nondual science come to the fore. This question is asked under the rubric of the question of schemas and gets formulated in terms of what is called General Schemas Theory. General Schemas Theory compares different schemas and studies their nature as a group. It develops a hypothesis as to the different schemas that exist in the Western Philosophical Tradition, asks what the genealogy of the schemas are within that tradition and what the mathematical foundations of the schemas might be as well as studying individual schemas and looking for examples within the tradition. General Schemas theory is the subject of a Research Dissertation by myself at the Systems Engineering and Evaluation Center (SEEC) at the University of Southern Australia for the degree of Ph.D. The current status of that research project can be found at the research website which is <http://holonomic.net>. In this research project I am trying to push as deep as possible to understand the nature of schemas. I take the schema to mean what Umberto Eco means in his Kant and the Platypus by the Geometrical and Mathematical Schemas as opposed to the various other uses of the word. We see these first appear in Protagoras with his dictum that Man is the Measure of all things. Then we get quite a bit of information about a certain schema called Form in Plato's works and specifically in the Timaeus he introduces the type of schemas that we are interested in when he talks about the triangles and platonic solids. These schemas get mentioned in Aristotle's De Anima. Then the next time we see them clearly in the tradition is in Kant's Critique of Pure Reason as the relation of his Categories to Time. Heidegger deals with the schemas in his text Basic Problems in Metaphysics where he interprets Kant. Merleau-Ponty in The Phenomenology of Perception and The Visible and Invisible and others like Samuel Todes in Body and World deals with the body schema and its relation to spacetime later in the tradition.

However, although Schemas play an important role in the Western Philosophical Tradition it has not been considered an important concept overall and very little attention has been given to it by the philosophers and scholars within the tradition. I believe that understanding schemas is very important to our understanding what Systems and Meta-systems as specific schemas are, and how they interface with existence will tell us something about the nature entities that are holonomic, like the Special Systems, Emergent Meta-system and Autogenesis. Therefore I have tried to mount a study of this important concept within the Western Scientific and Philosophical Tradition, but also specifically in order to give a context to Systems Theory and its practical implementation in Systems Engineering. Since I practice as a Systems Engineer and that is my vocation I am trying to explore the mathematical and philosophical foundations of that practice as well as contribute to the understanding of nondual Science. Eventually we must move from nondual Science to nondual Engineering. It is the Engineers that are destroying the planet based on the use of science, it is the engineers who are shaping our contemporary life with their implantations of Technologies that we use continually and which have become the infrastructure of our lifeworld. In a way it is more important to produce a nondual engineering than a nondual science because the ramifications of science occur through engineering. Engineering and Science are two sides of the same coin, but it is Science who is the master and Engineering who is considered the slave in this relationship, while instead without engineering little experimentation in science could be accomplished. So we need to consider Engineering and Science together, and it is in some ways more important to study the obscured partner in this relationship rather than the one pushed out front by our culture and society. It is an engineer who decided to create automobiles using gas powered engines and who did not think beyond the system of the car to the meta-system of the environment. The engineer did not think about what would happen when there were millions and millions

of automobiles roaming the face of the earth. The imperative was to give freedom of movement to individuals and nothing was thought about how that would reshape our environment, our society and our culture. So we are living with the consequences of that design ever since. There were better computers than the IBM PC, but we are still living for the most part what that bad design just because IBM created it. Because they decided to buy an independent operating system we now have Microsoft as a monopoly to contend with. It is engineering design decisions based on business decisions that drive our technological infrastructure and shape our lives based on what Science finds, but not completely determined by it. So Engineering is a little studied and little understood part of our culture and society which has a big impact. Most systems that are put together are tinkered with until they work. There is very little in the way of a basis for Engineering in general or Systems Engineering, the discipline that integrates all the other forms of Engineering together. And there is no Meta-systems Engineering, i.e. engineering that looks beyond the system. If we are to transform systems engineering which concerns itself with the emergent effects of the whole system we must look at the foundations of this new discipline and attempt to understand them better. I have tried to do that by exploring the concept of the schema. As Foucault has noticed sometimes you make more headway if you do not study the Great Names in philosophy but what everyone knows, the mundane and run of the mill authors and how their understanding changes over time. Similarly if you want to understand Science you look at its underbelly in Technology and you come to grips with the unglamorous, such as Engineering which actually drives Science by determining what experiments can be done.

My hypothesis is that there are ten layers of schematization. This hypothesis has come from a life long reading of the works from the tradition and is based on noticing the different organizations that were applied to topics being studied. From Plato up to the beginning of the

Twentieth Century there was one major Schema, and that was Form which was used to understand everything. In the Twentieth Century two other schemas which were Pattern and System became important. And now at the beginning of the Twenty First Century we are starting to realize that there are other schemas besides these such as Openscape (meta/infra-system), Domain, World, Kosmos, Pluriverse, Monad, Facet. These other schemas have been around haunting the primary schema of Form from the first but they were not emphasized. Now slowly the other schemas are being recognized and we are at the point where we can hypothesize that these are the primary ones and that they form a hierarchy of scale in which measures things in his world.

**Pluriverse** (8; 9)

**Kosmos** (7; 8)

**World** (6; 7)

**Domain** (5; 6)

**Openscape** (4, 5) (meta/infra-system)

**Special Systems**

**System** (4; 3)

**Form** (3; 2)

**Pattern** (2; 1)

**Monad** (1; 0)

**Facet** (0; -1)

Key: (dimension; dimension)

Notice that the special systems appear right at the center of this series of emergent levels. We know the special systems relate to existence while the Schemas are part of the projection of Being in terms of spacetime continuity/discontinuity. So the schemas are what we project on to nature. And nature answers us back in terms of anomalies. When we look at those entrenched anomalies then we find that they point toward the special systems. But those special systems have a place within the interstices of the differences between the schemas, so it is unclear whether the special systems are inside the schematization or outside as part of the backtalk to us of nature which we have tortured to reveal her secrets as Bacon insists we do. Thus as we might expect the Special Schemas are somewhere nondually

between us and the noumena we study in science. But in order to get at this hinterland between us and the noumena we must first understand the schemas that are established as a fundamental part of the projection mechanism of Being. What is strange is that the schemas themselves have many of the characteristics of the Special Systems, that they in fact form an autopoietic ring, so that there is a sense in which the schemas as the infrastructure of pure projection is actually an existent itself, i.e. Ultra Being, and that the projection process has ultra efficacy just like consciousness, life and the social. So by studying schemas we come to understand the hidden aspects of our worldview and its interface with existence better.

For instance, a major discovery in this regard is the fact that there is a relation between dimensionality and the schemas. This relation is such that there are two dimensions per schema and two schemas per dimension. So the schemas and the dimensions are a double series like that which Deleuze talks about in Logic of Sense. In other words form can appear at the third dimension or the second dimension. Pattern can appear at the second dimension or the first dimension. Thus at the Second dimension there are two schemas which are Form or Pattern to choose from. Once we realize that we see that the schema Form has two aspects and the schema Pattern has two aspects and that there is a mirroring between the hierarchy of representation which goes down the schematic hierarchy and the hierarchy of repetition that goes up the schematic hierarchy. Repetition and Representation are the two fundamental driving forces for the production of the schemas that Deleuze talks about in Difference and Repetition. And Taussig in Mimesis and Alterity alerts us to the fact that between these two chains of the production of Representations and the production of Repetitions there is Mimesis at each stage. By understanding the fact that there is an intrinsic relation between Schemas and Dimensions, i.e. between the finite and the infinite, and by understanding that this relation represents the

Deluzian double series then we can understand the nature of schemas much better. For instance we see that quickly the schemas escape from the dimensionality of the world in which we live. We can think of these higher dimensions that define the higher schemas as the ecstasy of Dasein's projection of the world and the other schemas. These higher schemas with their associated higher dimensionality give us room to unpack our world and thus have the capacity of creating the opening and clearing that Heidegger talks about in his work within which we can relate to things in our openscape, domain, world, kosmos and pluriverse. Thus we can see specifically how we live in higher dimensions than the physical world and so that is how we can handle such complexity of our existence within the world, because we continually overflow it projecting a series of open horizons of higher dimensions. But at the same time we always at each dimension have a choice of how we are going to schematize any particular dimensional object and so we have a certain very limited freedom as to how to deal with objects in our world from the point of view of schematization.

When something new appears before us the first thing we do is schematize it, that means locating it in a dimension, but it also means projecting an preset organization on it of the schema we choose within a particular dimension. After that we determine its kind and after knowing its kind we then start to notice its unique features and then it is only after that when we assign a significance to the object. So schematization comes first as our first triage of the things that appear to us unexpectedly within our experience. Philosophy in general has focused on kinds and has ignored schematization. It is one of the great insights of Kant who realized that something like schematization must go on if we project spacetime itself on noumena. He thus brought back to life in our tradition the realization that Plato made in the Timaeus that pure forms must enter the receptacle of space via specific dimensional schemas like triangles and platonic solids. This insight keeps getting

lost because we do not think about the first time something is seen but what we always see. Our brain acts differently to seeing something unheard of before than it does in the familiar lifeworld that is mundane. Schematization comes out strongly when we confront the unfamiliar. But schematization though hidden underlies both the categorization into kinds and the particularizing or instantiation of the individual prior to the association of significance to the object. This powerful organization before all other organizations of things in experience has a large role to play in Science which is continually searching for new things that have never been seen before. Since everything was once something that had not been seen before that means the organization of schematization underlies our entire scientific edifice and not only that but it becomes the basis for engineering as well because engineering uses it as the basis for creating designs which are new projections onto the things of the world. So schemas are quite important but have not been studied, even by art historians, which you would expect would have understood the nature of the schematization process long ago as it determines the kinds of art that we have as a basis of expression where sculpture is a form, but so is painting which attempts to represent forms, yet painting is also a pattern of colors, and those colors are put onto canvas using brushes that draw out one line with each hair in the brush. So we see in the brush and in the painting's juxtaposition and fusion of colors the patterning of the painting while we see in the painting, if it is not abstract, forms of three dimensional forms which we see in our world around us. It is art which brings schematization to the fore as a human expression of our experience. But those same schemas are fundamental to Science and Engineering because we project the organization of the schemas onto the environment via theories or via designs and thus change the environment to match our projections and then we encounter in the environment those very embodied projections coming back at us, giving a mimesis effect between our repetitions and our

representations. If we read Deleuze and Taussig together it gives us a very interesting view of the power of schematization within our worldview. Schematization is the most fundamental double series, the one projected first, as a basis on which all other series must be based. That projection has to do with the creation of spacetime as an environment in which to experience things within the lifeworld which is related to our body schema in a fundamental way, but which as an ecstasy overflows from our body schema to go to higher dimensions and higher organizations of the lifeworld, up to the kosmos and pluriverse through the stages of the domains and openscapes. But there is also the lower domains completely within the dimensional fit of our living circumstances such as the System, Form, Pattern, Monad and Facet. Notice that both the System and Meta-system (Openscape) are four dimensional and that this is as we know the ultimate dimensionality of our physical environment of spacetime. It is interesting that it is here at this transition that the special systems make their debut. It is precisely on the edge between the real spacetime and the higher virtual dimensions that the special system appear. This tells us something about their importance in terms of connecting mind and body. If we think about mind as the overflowing into the virtual world of our bodies trapped in the four dimensional realm of spacetime, then suddenly we would see that the special systems have a special role to play as the intermediaries between the duals of mind and body, cogito and temporalized extension. That is why these nondual holonomic partial systems and partial meta-systems play such an important role in our experience as the background of thought and experience in general. And they provide consciousness with its ultra efficacy (ultra efficiency and ultra effectiveness). Consciousness is like no other medium and it is the environment in which the mind of the ego with specific thoughts and experiences functions. But consciousness also suffuses the body and builds upon the poise and motor intentionality that is inherent in the body which inhabits all the various kinds of Being

that structure our world. Life is an ultra-efficacy trapped in spacetime, but Consciousness is an ultra-efficacy that allows the mind to project beyond spacetime. And in that realm beyond spacetime our consciousnesses merge within the reflexive social field which has its own sort of ultra-efficacy which allows us to have a theory of mind of others and do mind reading, and act as if we knew what others were thinking and experiencing. Notice how life is just within spacetime, consciousness at the boundary of spacetime, and the social just beyond spacetime. Yet the life is autopoietic, consciousness dissipative and the social reflexive. So there is a kink in the mapping between the levels of emergence and the types of special systems we have. But notice that in the series of cities there is also a kink in as much as Atlantis that is reflexive is at sea, the republic which is dissipative is on the coast and magnesia which is autopoietic is in land. This is the same series. The autopoietic on land is like the living body trapped in spacetime, the dissipative on the coast is like consciousness at the boundary between spacetime and the virtuality beyond in higher dimensions. The reflexive within the sea is like the social in the realm of the virtual. It turns out that the Egyptian model of their genealogy of the gods has the same order. It goes from the Ogdad (Nun-Naunet, Heh-Hehet, Keh-Keket, Amen-Amenet) which is reflexive, to the founder gods (Shu and Tefnut, and Seb and Nut) which are dissipative, to Amun (atum) Ra which is autopoietic. So now we have three orders, one mythological, one sociological, and the other related to the overflowing from spacetime to higher virtual dimensions of our lifeworld. But these orders are different from the order of genesis of the special systems as such within our theory. So we need to consider this difference of order and how it plays into the entire background of schematization as a whole. Schematization is the projection of preconceived orders onto things in the lifeworld. In schematization the virtual world beyond spacetime and the world of spacetime are drawn together by two series, schemas and dimensions, one a finite number of emergent

levels and the other an infinite number of compositional levels which contain emergent higher dimensional platonic solids, groups and other assorted mathematical objects of various categories. So there is a double crossing. The crossing between the double series and the transcendence beyond the immanence of spacetime of the virtual schemas of higher impossible dimensionality. At the point of this double crossing there appears the special systems. There is their mathematical series denoted by several analogies of mathematical anomalies which gives us their order of genesis. But then there is a different operational order to the special systems that is different that goes from reflexive to dissipative to autopoietic. The different historical applications of this series interpret it differently within their own context of concerns. But notice that the series of sociable, amicable and perfect numbers has the same order. We have to juggle this order in order to make the theory work, and what we discovered when we juggled the order was that the sociable and the amicable were aspects of the autopoietic from a different point of view. So if we follow this clue then we will find that the difference in order has to do with the fact that the living has within it the intimations of the social and consciousness. In other words immanent within the spacetime embeddeness of the body is the basis for the transcendence of consciousness and the social. This takes us back to the point of Deleuze about immanence. There is no transcendence without immanence. If there were no basis within spacetime then there could be no transcendence beyond spacetime into the virtual. Immanent viability is the touchstone on which all transcendence is based on, and in fact what the nondual as the interspace between immanence and transcendence is based on it too. So that brings us back to the necessity of constructing first a model of the immanent which is the autopoietic as the living. No life, then no consciousness nor any social. This is why Nietzsche privileges the value of life over all other values and as he notices life is not nice, it is predator prey relationships all the way down the food chain. Life is messy and is about Will

to Power. But it is the Will to Power that causes us to project beyond life other values that appear in the Genealogy of Morals. Ultimately our morals that we project beyond life have to be judged by the criterion of eternal return, an immanent basis to make a non-nihilistic judgment between moral systems and values projected beyond life. Can we stand for a life led by that moral system to be repeated for eternity? This is a basis for making an immanent non-nihilistic distinction between value systems. It is not a model of the physical world as some believe although Nietzsche tried to figure out how to make it a model of the world. Our projection of the virtual world beyond the immanence of spacetime, i.e. beyond four dimensions higher or lower takes our schematization away from the system and meta-system (openscape) that are trapped within the asymmetrical four dimensionality of spacetime. That four dimensionality is ruled by the Quaternion as it is this group that governs rotations in four dimensional space and thus all real movement. Other equations for movement in space have singularities that cause hitches in their movement. Thus the quaternion is rooted in spacetime geometry itself. The axes of the fourth dimension are related to each other through the Quaternion, and that is why there is a bifurcation between space and time and why we only experience one three dimensional space rather than the four that inhabit four dimensional space. But this is also why our world is structured on the basis of the three regions. The three regions of our world are within the virtual part beyond the mundane part trapped in spacetime. There are really four three dimensional spaces in four dimensional space. But only one of those is actual, and the other three are virtual. Two are the spaces of the dualities, and one is the antipode of the nondual region. So the world as projected out from spacetime is structured into the three virtual regions beyond the mundane realm of spacetime. There is a broken symmetry and that broken symmetry is inscribed into the structure of the quaternion which is the basis for the structure of the autopoietic system which is embedded in spacetime. But once the

virtual part of spacetime is projected beyond three dimensional space then we get the regions of the world as the other aspects of the broken quaternion structure unfolding. And out of that we get the dissipative realm as the structural conjunctions within the Autopoietic, and we get the reflexive as the full projection beyond the autopoietic. We get these two simultaneously as implicated as what was there before the symmetry breaking of the quaternion. The dissipative is prior to the symmetry breaking and the reflexive is a further symmetry breaking that happens when you bring two autopoietic special systems together. So you see this strange order of autopoietic, dissipative and reflexive, has to do with the projection process unfolding into the virtual realms beyond and within spacetime, and we experience that as the unfolding of the schemas and the dimensions in both directions from immanence of four dimensional spacetime.

### **Schematization and Nonduality**

Schematization is caught up in Ultra Being. Ultra Being is the nature of the projection process of Being as seen from the outside, as an existent. Ultra Being is very strange stuff indeed. It is best described by the term used for it by the Alchemists: Mercurius. For the alchemists there were two fundamental elements called Mercury and Sulphur. These combine to produce Cinnebar which is their stable form. But they have an antipode which is virtual called Mercurius, which has the nature of a trickster, it is maya to the Hindus, it is dukkha to the Buddhists, it is dunya to the Muslims. Jung describes Mercurius as the nondual between Christ and his older brother Lucifer. Deleuze relates it to Sin, Evil, and calls it difference-in-itself which he contrasts with repetition-for-itself. Ultra Being is this antipode of Strange Fire and Odd Water which is volatile and virtual and define the non-nihilistic distinction between emptiness and void at the fifth meta-level of Being. It is the meniscus or the surface tension of the projection process. It is Being as itself an

existent.

Since the geometrical or mathematical schemas are the first thing that any existent noumena encounters it must first break through the meniscus of the projection, and so it gets cloaked in the veil of Ultra Being first. So Schemas have the ultimate nature of Ultra Being, and since Ultra Being occurs at the level where genuine emergence occurs it is within the schemas that we first see genuine emergence. Things emerge first in the human spacetime. Then they become kinds of things, or unique individuals, or signifying or valued things. So schematization has an important role to play with respect to the nondual. Existence is interpreted either as emptiness or void. As emptiness it is null sets of time. As void it is nil masses of space. Ultra Being distinguishes between these and thus establishes a non-nihilistic distinction. This is odd because normally non-nihilistic distinctions are made in existence not Being, but here Being is an existent so it is possible to play this role which is associated with the Old English root *Weorthan*. Beyond the threshold of existence there is an injection of Being into existence itself as a taint or a poison or as the Buddhists say a seed, *bija*. From this seed the world tree, *Yadrassil*, of Being grows. It is the seeds that are brought to the surface by the plowing of the EMS cycle that foments change and produces *maya*, *dukkha*, and *dunya* as the illusion of the world. As long as there is a distinction made between emptiness of consciousness and the void of nature then there will be this veil of Ultra Being that distinguishes them which is the surface of our bodies. But when we move up to the sixth meta-level of Existence only, where these impurities are not able to mix with existence, or if they mix they are such a tincture that we cannot trace them within the bedrock of existence. Whether there are any traces of Being at the sixth meta-level of Being is open to question, but for the moment we will assume that Being merely becomes another existent beyond that level, that its poison is antidoted at the higher levels of Existence.

But it is clear that Ultra Being is very important for the understanding of the Schemas and for the nonduality of emptiness and void as dual ways of looking at nonduality. At this fifth meta-level of Being there is a flip where the duals become nondual as ultra Being and the nonduality that is hidden in the third region of the worldview becomes dual as emptiness and void before these fall into manifestation which is a purification of what Deleuze, following Spinoza and Leibniz, calls expressivity. Expressivity is the univocal relation between the infolding from many to one and the unfolding from one to many. Expressivity is what gives rise to the immanent as opposed to the transcendent seen as one from the point of view of many or many from the point of view of the one. Expressivity is something else than the interchange between the one and the many and their intertransformation. This it approximates the realm of the nondual. But not conceived yet as either emptiness or void and thus perhaps more akin to Ultra Being. Manifestation is the antipode to Ultra Being. It is the deeper nondual before and between them rather than the surface distinction. So manifestation is a purification of expressivity of sense, as such it is a source of meaning rather than sense. It is between the paradoxical and the suprarational, embraced in their intertwining. Just as Ultra Being as Mercurius is the antipode to cinnabar, so Manifestation is the antipode to Ultra Being posed between emptiness and void, the two views of the nondual at the fifth meta-level of Being. Manifestation is the central pivot of the Divided Line between the other two subordinate lines that represent emptiness and void in the midst of doxa and ratio.

If we follow Blake and his vision in the Four Zoas we realize that the divided line he presents in the Republic is that of Urizon. Urizon has his emanation, and then they bring fourth the shadow and the spectre. These four are equivalent to the four parts of the divided line. First the line divides into two, ratio and doxa, then each two divides into two, the original and the child of the opposite sex of the parent. This confirms the judgment that the

Republic is a journey into hell if we compare it to the reign of Urizen in Blake's Vala. But this also gives us a wider view which is that we are presented in the Republic with only one divided line, but in fact there are four, associated with the other three Zoas, i.e. Tharmas, Urthona and Luva. In this way there is a symmetry breaking again and the other divided lines are hidden. Each of those other Zoas have their emanation and their spectre and shadow and thus we have the quadrates of quadrates that Jung speaks about in Aion and which he considers the key to Alchemy which we tend to take seriously because we also find in the Epic of Gilgamesh. If we think of the fact that there are four divided lines and thus that the axis of manifestation goes through the center of all four of them and is in fact like an Alif in relation to Kaf, Mim, Lam and Ha Arabic letters, then we find that each letter is like an articulation point, which is doubled by the letters that are without dots and doubled again by the letters with dots until we get to the sixteen divisions of the quadrate of quadrates which is the Arche prior to schematization. Thus we see that manifestation is much deeper than we might imagine just looking at one divided line rather than considering the minimal system of four divided lines seen in Blake's vision.

There is a point that needs to be made here when we begin considering Ultra Being. It causes us to think more deeply about the standings of Being and Existence and Manifestation and what lies beyond that. What I realized was that no one before had really thought about the concept of meta-dimensionality. In other words we need to question what is the next meta-level up from dimensions. What are the meta-dimensions. When I started thinking about that I finally realized that the standings of Being, Existence and Manifestation, etc are the meta-dimensions beyond dimensionality, and that the aspects of Being which are Truth, Reality, Identity, and Presence are the meta<sup>2</sup>-dimension. Once you realize that there are infinite meta<sup>n</sup>-dimensions and that they appear as the articulations of Being then we can see that beyond the aspects



of Being are the regions of the worldview which are based on triality, and then there are the fundamental opposites based on duality, and then there is unicity, and zeroicity, etc. This means that the four aspects of Being are related to Quadrality. After that are the seven standings, and after that are the ten schemas. So I put this series into the series search engine and found that this series corresponds to fibered rational knots which gives the following series: 0, 1, 1, 1, 2, 3, 4, 7, 10, 16, 40, 62, .... This series gives us the finite organizations of the meta<sup>n</sup>-dimensions. It gives us a specific number of finite organizations related to the infinity of each meta<sup>n</sup>-dimension. It explains mathematically why the world is organized the way it is. But if the 10 is the number of schemas related to the infinite dimensions, then when we cross that line we reach negative meta<sup>n</sup>-dimensionality, and that is the 16 Arche, i.e. what is before the schemas that Jung calls the Quadrate of Squares in the unconscious. So prior to schematization there is something else that occurs in the unconscious which is the realm of the Zoas, i.e. the different faces of God, seen as sleeping Albion, that appear in the Bible. Knots are the emblem of self organization, i.e. organization that is in tension against itself. Fibered knots are embedded in their environments. Rational knots are gotten by a rational procedure. Fibered Rational Knots are a subset of all knots. They are topologically embedded by generated rationally by specific moves in two directions with cords that are then joined at the ends. Exactly why it is these knots that are the basis of generation of finitude out of infinity of the meta<sup>n</sup>-dimensions is a subject of further research. But the concept of the worldview as being poised between finitude and infinity is built into its heart. So what makes this transformation between finitude and infinity possible. The answer of knots, i.e. something that self-organizes by tension and interference against itself, is very interesting from the point of view of autopoiesis, which is a vision of how self-organization works in a viable embodied creature. And it calls our attention to the sixteen elements in the unconscious which are related to the Greek gods as mapped onto

the chess pieces. The male gods and the female gods represent the two sides who are in constant struggle between the sexes engaged in the mysterium conjunctus. When we look at the archetypes we are looking at the sixteen Arche which are the projection prior to schematization, the projection within the bedrock of existence itself, seen as the collective unconscious. These sixteen are the elements of the sedenion which represents the meta-system lost in the realm where division has been lost and fusion has occurred.

Nonduality has this structure of the sedenions embedded into it, as it does the special systems and even the normal system. It is prior to the schematization which projects spacetime, so the Arche are outside of spacetime in relation to the embodied individual embedded within spacetime. Nondual Science would study all the layers of meta<sup>n</sup>-dimensionality. It is though this idea that meta<sup>n</sup>-dimensionality can be negative that we enter the realm of existence and manifestation and the highest standing. It has not been realized that dimensionality itself can be negative, so how are we to expect the idea that meta<sup>n</sup>-dimensionality can go negative to be understood. Negative Dimensionality relates to the inverted pascal triangle that is made up of the infinite hypercomplex algebras that make up the bedrock of existence. We extend the pascal point, into the pascal line, into the pascal triangle, to the pascal simplicies which are infinitely deep. The pascal point has the nature of Ultra Being. Within the pascal triangle is even zero which is equivalent to emptiness. But between the positive and negative pascal simplicies is the odd zero which is equivalent to void. Void is deeper than emptiness because it is the place between the negative pascal triangle and the positive pascal triangle. The negative pascal triangle is the negative dimensional subspace, or hyperspace where interpenetration occurs. It is made up of the infinite layers of the hyper complex algebras that model interpenetration. The pascal triangle is the unique figure that has the qualities of all four special systems at the same time. It is expanding level by level through its algorithm of addition which works

like a cellular automata to expand dissipatively ordering the void, crating the empty spaces within it that separates the numbers at each stage. It is Self-producing and thus autopoietic in the way that the negative dimensionality balances the positive dimensionality. It is reflexive because each line has a mirror going down the center of each triangle, and also along each pascal line. So the pascal Triangle is a figure that joins the characteristics of all three special systems into one mathematical object which has all sorts of interesting features that has been the subject of exploration since it was discovered by Pascal, and before that by the Chinese. The pascal triangle generates the minimal solid in each dimension and thus generates dimensionality itself as it expands. But just like the pascal triangle is reflexive in as much as it contains the specifications for the simplicies which it fills out as it expands, so to dimensionality itself expands into the positive and negative meta<sup>n</sup>-dimensions. And it is knots that tie the finite and infinite together. You can go around a knot infinite times but you stay in the same self-organized pattern. There is a subset of knots that are embedded in their topological space yet also rational and these define the difference between the finite and infinite within our worldview. Notice that a subset of knots define the worldview, this is within the limit of all knots which is something greater than the worldview, i.e. the other knots define self-organizations that are outside the worldview, and thus are the self-organizations of the noumena beyond the projection process. When things speak to us rebelling against our projections it is these other self-organizations that are the basis of that speech that we hear through a glass darkly by way of the generated anomalies. So not only do we want to find a place for the subspace of negative dimensions within nondual science, but we want to find a place for the subspace of negative meta<sup>n</sup>-dimensions, so that we can understand the arche and what are beyond them like the forty and the sixty two and the other finitudes within the meta<sup>n</sup>-dimensions. If negative dimensions are the place of interpenetration based on the model of the hyper-complex algebras, then we

must ask what is the model of the negative meta<sup>n</sup>-dimensions? And we have no answer for that as yet. And we can also ask if there is again another expansion which is n<sup>n</sup>, etc. These realms are the playground of nondual science.

When they say that the universe of string theory is made of eleven dimensions we can see that as the dimensions of the schematization from -1, 0, 1, . . . 9. String theory merely uses the other schematization of the monad as a line rather than a point, and that generates five string theories in ten dimensions 0 thru 9. But when we add the eleventh dimension as -1 and go to the level of faceting schema then we get a unified M-Brane theory in eleven dimensions. So string theory, beyond its testability, as philosophy is merely a working out of the schemas as a projection of another lower level of phenomena beyond the quark. But instead of seeing the other six or seven dimensions beyond the four dimensional world as rolled up, or as in the pluriverse, we can instead see that the other six or seven dimensions of the strings or M-branes are sunk in the negative dimensionality. So our world is like an ice berg with three dimensions up in the positive dimension, and one dimension associated with time at the surface of the water, and seven dimensions under the water in the negative dimensions, that means that the strings function in the arena of interpenetration itself. They are not rolled up dimensions at the plank level, nor are they dimensions within the pluriverse, rather they are the part of our kosmos that is submerged in the negative dimensional hypercomplex pascal triangle that is the stalagmite to the stalactite of the positive dimensions. So the universe itself extends to the same finite dimension as the schemas, and that lets us know that the strings are made up of Ultra Being. The five fold symmetry of the string theories is the way that the facets appear at this ultimately distant realm of the small and realm of the large. It is small if the dimensions are rolled up, and the large if the dimensions define the pluriverse. We can see that by developing the concept of the schema as we have done we are entering into the cutting edge of the physics of our time, and seeing that it

really exemplifies our understanding of the schemas which is always projecting the next lower emergent level that everything is made up of. And in the dimensions or the meta<sup>n</sup>-dimensions nonduality is there each step of the way. It is there as the void of odd zero mass between the positive and negative pascal triangles. It is there as the emptiness of even zero interspersed in the expanding pascal simplicies as the blank spots in each generated row. It is there as the discontinities between elements of the rows and between the rows themselves in the positive and negative directions, it is there as the meta<sup>n</sup>-dimensional substrate that defines the world within which the pascal triangles comes into existence. Nonduality is the backdrop to the schematization, to the Arche, to the standings, to the aspects, to the regions, to the nihilistic duals, to the trinity of ones, and in the zero beyond the ones that starts above the seventh meta<sup>n</sup>-dimension. Nonduality is the context for the schemas paired with the dimensions and of the various other finitudes in the infinite meta<sup>n</sup>-dimensions. And the whole of the finitudes and infinities as two series in each case is nothing to the nondual backdrop. And at a certain point no matter how sophisticated our science, whether nondual or dual or monistic, there is a reversal of figure on ground to ground on figure, i.e. a reversal from gestalt to flow, and at that moment when the ground of nonduality comes to the fore and the gestalt becomes merely a reference point to the flow. At that point the ship of discernments sinks and we return to the tracelessness. We all go down with that ship. There are no survivors.