AUTOPOIETIC META-THEORY

Paradoxicality and Supra-rationality

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Summary:

We propose using supra-rationality to cancel the paradoxicality implicit in classical autopoietic observer systems theory as an experiment in producing a meta-theory. The meta-theory sees the roots of autopoietic theory in Formal Structural Systems theory such as that propounded by Klir. This paper is an introduction to the extension of autopoietic observer theory called Reflexive Autopoietic Systems Theory. The paper compares the autopoietic observer theory to the Oedipus myth as well as several other myths such as that of Odysseus.

Introduction

In this paper we will consider the problems with autopoietic theory as it stands given the classical formulation by Maturana and Varela. Then we will propose a solution for these problems. The solution will in this case be worse than the problems that they are intended to solve and so may not be the best way of reconstructing the theory. But this paper is mean to be an experiment in theory building that will lead us to consider some of the problems with autopoiesis theory and some of the solutions.

What is wrong with Autopoiesis Theory?

Autopoiesis is a theory proposed by Maturana and Varela in the seventies to help comprehend living systems. Autopoiesis means self production. Living systems are seen as machines that produce themselves. The theory attempts to make clear the anomalous nature of *Living Systems* that we as living systems observe in our scientific endeavors. Because we are what we observe this introduces some degree of paradox into the formulation of our approach to Autopoietic Systems. This theory has always been notoriously difficult to understand in terms of normal scientific discourse. But until recently I considered the theory sound.

My own interest in the theory is as an example of a wider trend in the Western Philosophical and Scientific Tradition. It is an example of what might be thought of a self-grounding. Self-grounding is when something renders itself possible. In the Western worldview there is a theme of self-grounding that can be traced from the earliest philosophical and scientific thought down to the present. Good examples of this are Plato's LAWS in which he constructs the first systems theory. That systems theory attempts to envision an autopoietic city. Another example is what Michael Henry calls the Ontological Monism of Heidegger. That is for Heidegger Being grounds itself. There are other examples throughout the development of the western worldview. Self-grounding self-enclosed systems may be represented by Atum the god of Egypt who gives rise to himself by a sexual act with himself. There are various mythological representations such as the myth of Oedipus. So that as we collect these instances of mythical autopoiesis, such as the myth of the phoenix that arises from its own ashes, and compare them with the philosophical and theoretical examples we see autopoiesis in a wider context. We see that Maturana and Varela are merely giving an image of something that has always been an object of fascination in our worldview. Thus we can separate ourselves somewhat from their representation of autopoietic systems and be critical of it in the wider context of the myriad representations of autopoietic phenomena in our tradition.

Maturana and Varela did not create autopoietic theory out of nothing, but merely gave it a more precise and general representation which attempts to function in the scientific universe of discourse. This attempt at clarity and precision that we expect in scientific theories that we do not hold myths and philosophies to is what makes autopoietic theory particularly interesting. But unfortunately this theory of Maturana and Varela has some major flaws in its classical formulation which need to be addressed. I will briefly attempt to describe my view of these flaws.

I now believe that although Autopoietic Theory appears to be a theory of systems is actually a theory of forms. This is to say that although Maturana and Varela explicitly talk about *autopoietic systems* they are in fact describing *autopoietic forms*. I we consider the series of emergent ontological levels:

- ❑ Meta-system = environment

- ❑ System   = gestalt in context

- ❑ Form   = figure in gestalt

- ❑ Pattern   = content in figure

Autopoietic Systems theory is ostensibly at the level of the gestalt in context for the scientific

observer. But then when we look to see how the theory is built we find that it is built by first distinguishing *organization* from *structure*. Structure means the components and their relations that continually change within the form. Thus structure is one way of interpreting patterns. Other ways of interpreting patterns are as signs, values, and processes. Structure is a way of interpreting contents of forms that was popular in the seventies when the theory was propounded. Structures are normally thought of as micro-formalisms imposed on content which allow us to map across discontinuous jumps which distort or destroy forms. Thus structure allows us to go beyond formalism in our understanding of how things change discontinuously in the world. It allows us to introduce time into our consideration of change in the world. But it does so at the cost of reducing our explanatory power from proof down two merely showing mappings across discontinuities. In Autopoietic theory structures are seen as components of forms and their relations that change. The form is seen as a stable boundary. The example is the cell wall and the contents of the cell. The cell is continually rebuilding itself but it maintains a stable boundary to the outside world. The contents of the cell is continually changing as long as it is alive but the cell boundary remains stable throughout this process as the demarcation between interior and exterior.

In autopoietic theory organization is seen as a variable of the autopoietic system. Organization means the meta-relations that are a canopy over the structural relations of the components that remains the same despite changes in the components or their relations. Thus contrast to the micro relations of the components there is a set of meta components and meta-relations that are kept stable throughout the changes that the autopoietic systems undergoes. Organization is considered an attribute of the system and it is said that this attribute is maintained homeostatically by the autopoietic system. That system is seen as a network of meta-components that maintain their own organization as a homeostatic variable despite changes in the environment and perturbations of the system by the environment. From the observers point of view this self-producing network becomes an enigma because it does not respond directly to stimuli, but instead returns to homeostasis by its own means after any perturbations so that it may react differently to the same stimuli depending on the context and where it is in its own homeostatic cycle. The homeostatic cycle and the mechanism by which it continually returns to the same organization is hidden from the observer. Thus the autopoietic system is considered operationally closed.

Now notice that the persistent organization of the autopoietic system is at the level of description of the system as a whole while the structures that are changing are at the level of structured pattern. Description is even weaker than explanation as a way of understanding things. Description does not draw mappings between things but merely represents what is seen of the whole that is under scrutiny. By bringing together organization and structure as the primary distinctions that the theory is based upon autopoietic theory attempts to represent self-production. But self-production actually is best described at the level of form as a form that forms itself. Heidegger ontologically talks about this in terms of Ontological Monism, i.e. self grounding of Being by itself captured by the statement ***Being Is***. G. Spencer Brown in Laws of form captures it in terms of the Mark. The Mark is both operator and operand at the same time. The operation of the Mark is to mark itself, i.e. sever itself from its environment. Mark and Marked are the same thing. An Autopoietic Form is a form that Forms itself, i.e. shapes itself. In myth this might appear as the opposite, i.e. as a form that unshapes itself, like the god Prajnapati that kills itself. Self-killing is called technically apoptosis. We know that cells do indeed have suicide mechanisms and that cancer is the result when cells fail to kill themselves at the appropriate time in the context of the body. Thus self-forming and self-unforming are interrelated. Form Forms but also Form Unforms. In fact, Nietzsche's concept of Eternal Return is a cycle of Forming and Unforming repeated indefinitely. This cycle is seen as the basic pulse

of Being. This pulse is seen as beneath the Will to Power of self-forming. In other words self-forming can only take place in the context of forming and unforming of the self. So for Nietzsche in his later philosophy Will to Power is essentially related to Eternal Return of the Same. In other words you cannot have creativity without destruction. Creativity and Destruction are two sides of the same coin. Thus Nietzsche talks about how we must embrace Dionysus/Shiva in order to know Apollo/Vishnu. The nihilistic too dark and the too light are mutually intertwined so that they cannot be unentangled.

So we get the first picture of the relation between organization as persistent at the systemic level lording over ever changing structure at the level of pattern. But the network of autopoietic meta-nodes that themselves continually reorganize themselves to maintain their own organization homeostatically do not explain the existence of the boundary that separates them from their environment. In order to do this it is necessary to introduce form as self-forming in order to draw the distinction of inside and outside and erect a stable boundary. Thus the theory starts off at two very far apart emergent ontological levels and produces the book ends for the positing of the level of Autopoietic Form which is the emergent level in between.

But this is not the end of the story. Once the Autopoietic Form has been posited the it is raised to the level of "system" by introducing scientific objective observers that see the gestalt of the autopoietic form on the background of the environment. Observers are introduced deus ex machina, i.e. out of nowhere by the theory. They are ontologically independent of the autopoietic system under scrutiny, in spite of the fact that all known observers are themselves autopoietic systems. Thus observers and autopoietic systems reintroduce under a different guise the subject/object dualism so prevalent in scientific discourse. The distancing is ontological in the sense that observers appear from nowhere in to the theory and are seen as absolutely different from the autopoietic system itself.

It is this problem that autopoietic theory has with the social that prompted me to develop Reflexive Autopoietic Systems Theory as a fundamental extension of the general theory of Autopoietic Systems. I see Autopoietic Systems Theory as the limit of what might be called Formal Structural Systems Theory. The best example of that is the General Systems Theory propounded by George Klir in <u>Architecture of Systems Problem Solving</u>. At the end of that work Klir mentions Autopoietic Systems as a special case. This special case brings to a head the inherent weaknesses of Formal Structural Systems theory because it explicitly embraces the paradoxes that General Systems Theory avoids. But even that theory is not complete because it does not deal with the social aspect of systems. Varela makes the distinction between autonomous systems and autopoietic systems and calls social systems autonomous which is a more general category. But it is clear that observers are social, they take part in the social construction of reality based on scientific discourse within a culture like western culture embodied in a world. Thus it was necessary to rethink Autopoietic systems from the ground up to take account of this higher emergent level not considered by the propounders of classical autopoietic theory.

However, once I had completed my theoretical work I discovered that Autopoietic Theory that I had taken for granted was in fact a fatally flawed theory. It is flawed because it draws structure and organization from two very disparate ontologically emergent levels of explanation and then by them defines yet another ontologically emergent level: Autopoietic Form. Then it attempts to migrate Autopoietic Form to the level of Autopoietic Systems by introducing Observers from nowhere. Its flaws are these leaps across unbridgeable theoretical gaps. First gap is the too great a distance between the ontologically emergent levels of organization and structure. Second gap is

how Autopoietic Form is defined between these. Third gap is the movement of Autopoietic Form to the level of Autopoietic Systems by the introduction of observers who see it from the outside from nowhere. All these gaps make the theory untenable because each gap is an unbridgeable crevasse across which explanatory logic cannot jump.

The theory of Reflexive Autopoietic Theory does not have this problem. It makes first the distinction between System and Meta-System and then sees the special systems as anomalous stepping stones between these two ontologically distinct levels. The stepping stones are Dissipative, Autopoietic and Reflexive Special Systems. It is a quantal theory in which each level is ontologically distinct but inherently interrelated to the other by dualities. It allows Autopoietic Systems to be defined by their relations with Dissipative and Reflexive Special Systems and with the broader relations to non-special systems and meta-systemic fields.

However, in the development of the Reflexive Autopoietic Special Systems Theory I rely on other theorists to specify the nature of the special systems. For instance I rely on Pirgogine to specify the nature of dissipative systems, what he calls dissipative structures. I rely on Maturana and Varela to specify the nature of Autopoietic Systems. Finally, I rely on O'Malley in Sociology of Meaning to specify the nature of Reflexivity. These other theories seem to be very sound. But Autopoietic Theory as classically conceived by Maturana and Varela now appears to be very weak from the point of view of Theoretical Architectonics. It has too many unexplained discursive jumps in the construction of the theory.

I have complained of this state of affairs to the members of the autopoiesis email list which I manage. Randal Whitaker voiced similar concerns. But in the process of discussing these issues of the groundlessness of autopoietic theory a possibility arose for the solution of these problems. This paper is an experiment which will try this approach to comprehending autopoietic theory on basically the same grounds that it attempts to erect itself. The possibility came out of a discussion with Steve Hoath. Unfortunately it requires going up another theoretical meta-level and considering the relation between paradoxicality and supra-rationality.

Autopoietic Theory is notorious for its embracing of paradox. This is one of the things that makes the theory interesting because you do not normally see a scientific theory explicitly allowing paradox. The paradox occurs because we are living things that are observing living things in biology. Thus when we try to say what life is there is a natural reflexivity that occurs in our theorizing. In autopoietic theory this paradoxicality appears in the fusion of intelligence and life within the autopoietic system. Living things are seen as concomitantly intelligent things. And it is impossible for us to separate their life from their intelligence. Thus when we observe them we can expect behavior that is both living and intelligent at the same time. Because of this is impossible for us as living intelligent observers to predict what the object of our observation, i.e. living intelligent things, are going to do. Self-observation is not considered in the theory. It is when self-observation occurs that the social reflexive level is breached. This breach to an new and different emergent ontological level is what I consider in my extension of Autopoietic Systems Theory. It is important for me to see Autopoietic Systems theory in the context of the development from Klir's Architectural General Systems Theory which is taken to extremes in Autopoietic Systems Theory and then developed by the author into a Reflexive and Social Systems Theory by emergent extension. However the emergent extension recapitulates the whole process of developing the theory from a new foundation, i.e. the distinction between system and meta-system rather than from the distinction between system and structure which are bookends to the definition of Autopoietic Form. The whole introduction of observers from nowhere is rejected as theoretically and philosophically unsound. Observers are inherently social and

inherently living and intelligent. They are autopoietic social systems themselves. Thus any theory that comprehends the observers must be both social and phenomenological. Merleau-Ponty's social phenomenology is seen as a good starting place for that reassessment. Heidegger's insights in Being and Time are seen as foundational for that consideration of observers and autopoietic systems. We do not want to recapitulate the problems of the subject/object dualism in this new theory. Dasein is seen as the projector of the world, out of Dasein arise both autopoietic systems and observers as subject object reifications in science. But the normal autopoietic theory is flawed in that observers are just as mysterious as the autopoietic systems that are closed. Rather we need a theory that respects the ontological emergent levels but places each in its proper context. This is what Reflexive Autopoietic Special Systems Theory does. It brushes aside Observers and Autopoietic Systems as reifications of subject/object scientific dualisms and institutes a new theoretical foundation rooted in the understanding of the difference between systems and meta-systems.

However, we would like to salvage the insights of Maturana and Varela concerning the characteristics of autopoietic systems. These insights are very valuable and are useful for grounding the new theory in its historical context as part of the development of systems theory from General Systems Theory culminating in the theory of Klir, to the theory of dissipative structures, to autopoietic systems theory, and finally to the theory of social reflexive systems. This historical chain is important to the new theory even though it recapitulates the entire development by its own unique theoretical unfolding which assumes that social systems are the most basic and develops all others as degeneration from those. This assumption of the fundamental emergent nature of the social as exposed by Merleau-Ponty is what is unique of Reflexive Autopoietic Systems Theory against all its predecessors. It posits that the social field is fundamental for the arising of all other kinds of systems, even those that are explicitly non-social. It defines that social field as reflexive and then identifies autopoietic and dissipative special systems as aspects of that field. It is ontologically sophisticated in that it posits the different kinds of Being as the basis for understanding the differentiation of the various kinds of systems from each other.

However, for the moment let us stick to classical Autopoietic theory and see whether or not we can salvage it from its theoretical quagmire by moving up to the level of the supra-rational as a basis for counteracting the paradoxicality embraced by the theory. This is a long shot but it is worth exploring if only we can rescue the essential insights of the classical theory for use in the new theory.

Paradox and the Supra-Rational

Autopoietic Theory embraces paradox. It recognizes that the observer is a living system who observes other living systems in the science of biology. Those living systems are operationally closed to the observer. This is to say we cannot know what they are going to do when we perturb them. This is because they are maintaining their own organization homeostatically and we cannot predict where they are at any point in the hidden cycle that brings them back to homeostasis. What the system does with respect to a perturbation depends not just on the environment but its inner context of self-production. As we look at the autopoietic system we notice that it is continually changing from a structural perspective yet remaining the same organizationally. We also observe that it is maintaining its boundary dynamically with the environment. So we see that the Autopoietic System functions on the levels of System (gestalt whole), Form (bounded shape), and Structure (changing components and their relations). The autopoietic system is composed of

meta-components and meta-relations at the system level that remain the same despite the continual changes on the structural level. We also notice that even though the boundary changes shape it remains fairly fixed in terms of volume and topology in most cases as it defines the distinction between the autopoietic system and everything else. So the Autopoietic System is in fact a special case of a Formal Structural System ala Klir with the additional characteristics of living-intelligence and self-production.

Now the biological autopoietic formal structural system is a paradox because it is of the same nature as its observer and because it necessarily fuses intelligence and life within it self. This fusion is the heart of operational closure. We cannot tell what it will do when perturbed because it is cunningly maintaining its own self organization which is its life. Such a system pops into existence alive-intelligent and when it dies it pops out of existence. There is a discontinuous transition from non-living to living and from non-intelligent to intelligent and back again. Suddenly the emergent whole is there with the characteristics of living-intelligence and as long as it can maintain its homeostatic organization it persists as a viable system. But as soon as it fails then it dies and reverts to inert stupid matter. The paradox within is how the autopoietic system can be living-intelligent and the paradox without is the sameness of the biologist observer and the living-cognitive systems that he observes.

Another point worth mentioning that I go into detail concerning in my tutorial on The Ontological Foundations of Autopoietic Theory is that Autopoietic Theory is a kind of Biological existentialism in that within the context of a biology that is concentrated on the essence of species it instead focuses on the viability of the individual organism. Autopoietic Theory is looking at an individual cell or organism and considering its viability and its observational characteristics not that individual as a representative of the essence of a species. The question is what makes the individual organism or cell alive and intelligent, not how the species gained these characteristics though evolution. Thus the existence of the individual autopoietic system is what is in question not how that individual is a representative of the essence of a species. This reversal is key because by concentrating on existence, i.e. viability of the autopoietic system, the organization of that particular system and its maintenance of its boundary are brought into focus. But this also brings us the paradoxicality of the relation of the Individual to the Universal. Russell attempted to solve these kinds of paradoxes by saying that a class cannot be a member of itself. This was extended eventually to the Ramified Higher Logical Type Theory described by Copi. When we look at the autopoietic system as a living-cognitive organism that is part of a species with certain characteristics then we are brought to question this very participation of the individual viable existing organism in the universality of the species that the biologist assigns it to. It is through sexual reproduction and fitness that the existence of the individual effects the characteristics of the species. It is though biological reproduction that the individual comes to represent the species though its genetic patterning. So by the mechanism of biological reproduction the individual both exemplifies the species as it stands in the evolutionary process and also determines the future characteristics of the species by its reproductive success. Through time the individual is both part of the species and its progenitor. Thus though time it participates in this paradoxical status as a class that is a member of itself. The class is the species. The individual organism is a member of the species but it also is a progenitor of the species based on its fitness and reproductive success. So it generates the class that it is a member of, it in fact participates in the definition of that class though its fitness and reproductive success. If we look at just evolutionary theory that dominates biology with the focus on essence or if we just look at the individual's viability as an autopoietic system then we do not see this paradox of self definition though time. It is only when we look at both together that we see it. The individual in terms of viability does not care about the species. The fact that it exemplifies the species is

irrelevant to it. It is only concerned with its own viability, maintaining its life which it must exert its intelligence to accomplish. But by its fitness to the environment and its reproductive success it generates the species that it is a part of. It is both origin of the species (in the future) and a particular instance of a species (arising out of the past). This strange relation between the individual and its species can only be understood by recourse to time. But time stands outside of formalisms and is not comprehended by them. G. Spencer-Brown stops his exposition of the Laws of Form at the point where time is introduced. This is because formalisms cannot understand time. That is because formalisms are fundamentally static. With regard to the viable autopoietic system we get around this by looking at organization at the system level to provide persistence and structure at the pattern level to provide the possibility of change. This is an appeal to other emergent levels of discourse to provide the context within time for self-forming forms. In evolutionary theory we appeal as Jacque Monod did to structuralism and System as well to comprehend how evolution can be teleonomic. At the structural level there is the filtering of various layers of order and randomness. At the system level we see the Species as something that moves toward a goal without prior intention, the goal is made up along the way as the filters restrict the possible outcomes more and more over time. Individuals are seen as forms that are particular instances of the species whole.

If we look care fully we can see that evolutionary formal structural systems theory is the dual of autopoietic formal structural systems theory. In the one case the whole is the species while in the other the whole is the organism. In once case the structure is the individuals of a particular form that participate in various levels of emergent filtering. In the other case the structure is the components of the organism. In once case the form is the persistent characteristics of the species over time while in the other it is the boundary of the organism. Thus the evolutionary theory that concentrates on essence is the dual of the autopoietic theory that concentrates on existence of the viable individual. Placing Monod's teleonomic theory together with Autopoietic Systems Theory we get an overview of how though time the species and the individual can persist in spite of changes. For the species it is changes in the individuals and for the individuals it is changes in its components. By introducing time the paradoxes of species/individual relations seem to be solved which arise so poignantly when we merely take a snapshot.

But the paradoxes merely are submerged by this strategy because the question of origin comes up and we wonder where the first life form came from and how it arose. Kauffman has recently explained this by means of the idea of the spontaneous emergence of order in his seminal work The Origin of Order which is summarized in his popularization At Home In The Universe. For species we see the problem arise in the theory of Punctuated Equlibria theory which tells us that species die off in mass and arise in mass rather from some gradual process. This theory is more a bowing to evidence than an actual explanation because the actual mechanism by which many species are produced suddenly is mysterious. The die offs are explained by changes in the environment sometimes cataclysmic. Die offs vacate environmental niches for other species to take over. But how the rash of species that arise occurs is not understood. All we know is that the paleintological record demands it. If we combine spontaneous order generation with punctuated equlibra theory then we have an overarching approach to how the temporal paradox of origins might be solved. But we do not have specifics. Origins are mysterious and so ultimately the theory of formal structural autopoietic systems embedded in formal structural evolutionary systems are ungrounded. Time solves the problem at one level but merely moves it back a meta-level to the question of origins. At that level we have to explain the origin of not just individuals but also the origin of species. If we solve it at that level then it would push it back to the level of explaining how the origin of the individuals and the origin of the species are the same, i.e. How ultimately the dual formal structural systems are the same. This is a which came first the chicken

or the egg type of problem. Does the individual precede the species or does the species precede the individual. Is the individual a mutation from a prior species setting up its own species or is the species merely a generalization placed over the changes inherent in individuals? If we emphasize existence over essence then we consider the species as merely an abstraction as autopoietic theory does. If we consider the individual merely a representative of a higher level essence of the species then we think of the individuals as transitory phenomena which is the way of normal biological theory.

So we cannot escape from the fact that autopoietic theory is paradoxical. It difference with standard biology is that it embraces rather than suppressed that paradoxicality. Also we cannot escape the fact that autopoietic theory is completely intertwined with the competing paradigm of essence centered biology which is its dual. We have to take both of these aspects of the context of autopoietic theory as given.

However, accepting paradox and bringing into focus the existence of the individual living-cognitive viable system plays havoc with the theory of autopoiesis. That theory being a limiting example of Formal Structural Systems Theory sets astride three ontological emergent levels and tries to use all three of them together to discourse on intelligent living systems. It ignores the social level of emergent phenomena all together except in terms of the positing of objective observers. We cannot help but suspecting a sophistical ruse in the construction of the autopoietic theory by Maturana and Varela. That ruse attempts to present the paradox within the formal structural system context while maintaining the appearance of scientific objectivity. In other words it attempts to distract us from the groundlessness of the theory while at the same time holding the paradoxicality of the situation before our theoretical gaze. We can see this by the fact that the construal of paradoxicality and the ruse of producing the theory are duals of each other. If it were accidental we suspect that this duality would not exist. Most Formal Structural Systems theories start with forms then posit structures and then finally posit systems. This is to say they follow the power of the explanatory devices. Proof is the strongest explanatory device, the explanation which creates maps and then descriptions are the weakest. It is normal for us to try tie our discourse to the strongest arguments we can. But Autopoietic Theory does not follow this convention. It first posits the difference between structure and system and then posits the level of form defined by those and then it raises these forms defined inwardly to the systems level as seen outwardly by imaginary observers. This sequence of steps defining the theory, from an architectonic viewpoint has a strange quality. It looks at the inward of the autopoietic form and then takes the form and looks at the outward of it from the viewpoint of objective scientific observers. Thus we can see it panning about like a camera from the inside of the house to the outside of the house. When it looks at the inside of the house it considers the floor plan and the individual board and nails prior to looking at the rooms. Normally we think of the rooms first and only later of the nails and boards or how the rooms fit together into an over all floor plan. Then when we pan outside the house to look at it we see the boundary of the house but the floor plan is hidden from us and we find that the house has no doors and windows. The house is closed to us and its organization is hidden. Of course a house is not dynamically rebuilding itself constantly so our example is not complete. However, when we put it in these terms we see that the openness of the observers to the autopoietic system is the dual of the closure of the autopoietic system in on itself. The closure is both organizational and operational. This is because intelligence and life are irrevocably fused in the theory. Intelligence is how the system knows its own organization so that it can reproduce it in itself. Living is the process of gaining the necessary resources to carry out the reconstruction and self-maintenance operations.

In observation in biology it is normally one species (humans) looking at another species. Then

occasionally the same species looks at itself (humans look at other humans biologically). Thus the observer to autopoietic system discontinuity is then normally across species lines. Or it not across species lines then it is across individual lines in the same species. How often does the same individual look at itself biologically? This is rare. So a lot of differences are hidden in the differences between the observer who is intelligent and living but external and open and the autopoietic system that is intelligent and living but internal and closed. When we see that these are duals of each other with some characteristics shared (living and intelligent) and some are opposing each other (internal/external and open/closed) then we begin to suspect that the inverse of paradoxicality of living-intelligent nature of the autopoietic system is being hidden in this duality between observer and autopoietic system. It is this hidden duality that motivates the strange succession in the steps of building the theory. We force the attention of the one listening to the theory away from this dual by placing our emphasis on the inward distinction between structure and organization. We use this to define self forming forms and then we pan around to the outside of the house by positing scientific observers of the outside of the system concentrating on the visible boundary, i.e. the surface of the autopoietic system, i.e. the outside of the house, and emphasizing the fact that inner organization and operation is occluded. What we miss is the distinction between the observer and the system itself. We assume we as scientists know who we are as observers. As scientists we are used to suppressing the paradox of self-observation. We know from physics that observing something changes it. We are aware that self-observation must also change who we are. If we ever identify the autopoietic system with the observer then we must find a way to understand ourselves without distancing ourselves from ourselves. This means that we need a method that operates without distance as the antipode to the assumed distancing from the other. Fortunately we have this in the method of Heuristic Research. Moustakas developed this when he studied grief for his dead wife while he himself was grieving. His study was part of his way of handling the grief itself. He dwelled in the grief itself and studied its effects on him. He witnessed the transformative effects of grief on himself under his self observation. So when we consider that self-observation of the autopoietic system by itself is the limit of this theory then we see the paradox. We are open to ourselves yet closed to ourselves at the same time. We are internal and external at the same time. We are living-cognitive at the same time. The fact is that all the attributes are fused. Internal/External, Open/Closed, Intelligent/Living: All of these attributes are ultimately fused in us under our self-observation and indwelling in ourselves. The artificial distinction between observer and autopoietic system masks this inherent paradoxicality that appears when the autopoietic theory is taken to its limit where the observer and the autopoietic system are the same and no distance remains. Ultimately the theory is hiding this fusion of all the opposites by positing some as fused and others as dual. It wants partial paradoxicality and wants to stave off utter paradoxicality. But when we reach the limit of self-observation and indwelling we find that we fall into complete pardoxicality and because of that this theory does not really explain anything. It merely appears to explain things by carefully deciding what opposites to fuse and what to keep separate in the way it constructs the theory. In this way it validates science's concern that if you allow any paradoxicality in then the whole theory will be engulfed by it. It means that what you say within the context of the theory cannot help to ultimately be nonsensical. If there is any contradiction in a formal system then all of it is paradoxical and all statements are equally true or equally false.

Now the only way I can see to deal with this problem is to do up a level and look at paradoxicality itself. The question is whether paradoxicality itself has a dual. The question to this is yes. The opposite of paradoxicality is supra-rationality. The problem is that supra-rationality is not recognized in our tradition due to the general acceptance of Aristotle's ultimate principle of excluded middle. We are fascinated by paradox which is the fusion and mixture of opposites and are blind to the possibility of its dual which is the simultaneous without contradiction of

opposites. In order to understand this we must understand the difference between Indian Logic and Western Logic. Indian Logic has two possibilities that Western Logic does not consider. In Western Logic something is either A or not-A. Anything other or in between is excluded from consideration. Indian Logic considers also Both A and not-A as well as Neither A nor not-A. Aristotle in positing his principle explicitly refers to these other propositions from the older Indian Logic. He attributes them to Heraclitus and Anaxagorus. (?). He calls the acceptance of these other aspects disturbing as they lead to silence and paradox and ultimately are nihilistic in his view. In India however the reduced Western Logic is called the logic of school boys because of its over simplicity that cannot relate to how things are in the world. For instance, dusk is when light and dark mix. Western Logic stands always aloof from the natural mixing that occurs in the world. Lately we have developed fuzzy logic to account for this mixing to some extent by creating a mathematical extension to standard logic while still maintaining the supremacy of western logic. However, the straight forward acceptance of contradiction and incompleteness is rare. Recently there has been a move to develop para-consistent logics headed by Priestly from Australia. Also August Stern has put forward his Matrix Logic which is both para-consistent (accepting both) and para-complete (accepting neither). There is actually another property of the formal system that should also be considered which is well-formed-ness or clarity. We should add para-clarity to the list of properties that violate normal logic. However without clarity the system would no longer be considered formal. We know from the incompleteness theorem of Godel that the formal system is always incomplete essentially because there are possible well-formed statements that cannot be proved to be inside it or outside it. Non-well formed statements are not considered. But every formal system arises on the background of gibberish. If gibberish gets into the system then it is fundamentally disorganized. That is to say we always need to be able to distinguish gibberish from the well-formed statements. If contradiction is allowed then the formal system is disorganized. That is to say we always have to distinguish which of two opposites are true. If they are both true then the whole system becomes either all true or all false. If the system is some how found to be incomplete then it is impossible to tell the organized part from the unorganized part because what might look random might be actually just a new organization. If we look closely at these properties and how they break down in a formal system then we see that organization is tied implicitly into these properties. An organization must be complete, non-contradictory, and discernable from gibberish. If any of these properties fail then organization becomes indiscernible from disorganization. In that case we can no longer tell an autopoietic system from anything else because we cannot tell what organization it is maintaining. However, we have already posited that life and intelligence are fused in the autopoietic system. This is because the autopoietic system must be self-steering itself toward its own organizational blueprint. The program by which it steers must be the same as the blue print. In other words we cannot tell program from data in an autopoietic system. Yet it posits that we can tell inside from outside and open from closed. So there is partial fusion, that is partial contradiction or fusion surrounded by partial non-contradiction. Now notice that well-formedness and completeness is not questioned. Only contradiction is allowed an then only with respect to one attribute of the system. So we are limiting the effectiveness of paradox strictly so that we can answer Zeno and have the arrow reach its goal, i.e. understand living/intelligent systems while maintaining materialism and formalism to the extent we can while still appearing to comprehend life and intelligence in fusion. But once we breach the walls of the formal system allowing fusion in one variable then all the other properties come into question and we wonder why the observer is always incomplete and not-well-formed. In other words the autopoietic system only allows a breach in terms of contradiction of one pair of opposites while holding the others in a proper dualistic position by placing the opposites in different realms, i.e. the autopoietic system and the observer. But where the autopoietic system is contradictory the observer is incomplete, i.e. it lacks closure and externality which is vouchsafed for the autopoietic system itself. Also the

observer is ill formed because it remains nebulous and undefined in contradistinction to the definition of the autopoietic system that is its dual. So if we look at the whole theoretical setup we see that all the properties of the formal system are breached by autopoietic theory of observers and systems. The theory is breaks all the rules of formalisms when it opens autopoietic form up to structure and organization and then turns it inside out so that the observer can see it from the outside.

But if we accept paradoxicality in to our theory to attempt to solve the equivalent of Zeno's paradoxes for Biology then we must consider the relation of the paradoxical to the supra-rational. The supra-rational is the difference between the neither and the both according to Nargarjuna the great Indian logician and Buddhist. The supra-rational cannot be understood by the mind but is not a mixture of contraries or contradictories. It keeps the opposites apart but posits them simultaneously. The concept of Emptiness in Buddhism which is itself empty is said to be of this stripe. Emptiness is non-conceptual non experiential, i.e. it does not participate in either the intelligence or life. It is the anti-pode to both and it is also neither. Supra-rationality and paradoxicality are antinomies and they cancel each other. One arises out of the other at the limit of each. So if we bring supra-rationality into play within the classical autopoietic theory it should stabilize the pardoxicality within it. However, the theory is thus transformed from an discourse on the world to something that is merely an indicator of suchness, i.e. the nature of emptiness of all things. In other words the theory becomes equivalent to silence and thus does not escape nihilism.

If we contrast supra-rationality to paradoxicality then we find that it is possible for the same thing to be in multiple explanatory registers at the same time. Steve Hoath mentioned Skin because it is something that is simultaneously in the register of system, form and structure. Thus the skin as a boundary is something that is supra-rational in as much as it has all the different functions at once. We see that skin has a structural level because it is made up of cells which we can see that are constantly changing. We see that skin outlines the form of the autopoietic system. We see that skin covers the totality of the system from all angles that we look at it. We see that for humans that skin is covered with clothes, i.e. a social marker that observers of each other bear. So skin is an example of something that is supra-rational from the point of view of the various explanatory registers. We can understand how it is all these things simultaneously without self-interference. But if we try to explain it we get wrapped around the axle because we have to jump from one emergent level to the next continually in a round robin that seems to have no end. Thus what appears at one level as a paradox seems at another level merely something supra-rational. The supra-rational understanding we have of skin from being animals with skins in a world of animals with skins, i.e. in terms of our own embodiment and our experience balances out the paradoxicality that appears when the skin is split up into the various registers of explanation. It is like the elephant and the blind men. As long as the observers are blind to their own autopoietic character then they are lost in paradox. But as soon as they realize that they can observe themselves as living intelligent in an intelligent way in their lives then they understand the supra-rationality of the situation which allows skin to be different things at different levels of discourse at the same time without interfering with itself. Non-interference with itself in space like the non-interference of moments in time is what Dogen Kaigen calls Existence-Time. From the point of view of Existence time autopoietic systems are not paradoxical because the supra-rationality of them as we experience them in life cancels out the paradoxicality of the to our intelligence. Thus the non-fusion of intelligence and life in the observers balances the fusion of intelligence-life in the autopoietic system. In the observer we find the autopoietic system paradoxical intellectually but supra-rational in our living experience. When these cancel in the observer then we discover that autopoietic systems are inherently empty, i.e. unthinkable. In

other words when we try to find the self of the autopoietic system or the observer we cannot find them. This inability to find that stable self of either the autopoietic system or the observer, both or neither is the definition of emptiness. It means that they are basically unthinkable and thus not a theory at all only a direct pointing. In Zen they talk about the finger pointing at the moon. Autopoietic Systems theory augmented by supra-rationality is a finger pointing at a living system. It is like Oedipus pointing at himself in answer to the question of the Sphinx. He did not answer in words saying Man. He merely indicated himself as an individual and as a representative of the species. He was an observer of himself who indicated himself as the living embodiment of the answer to the intellectual conundrum posed by the Sphinx.

Autopoietic Myth

The root of autopoietic theory appears to us in many myths. The most striking of these is the myth of the Phoenix that arises from its own ashes. But we can see it also in more complex myths such as that of Oedipus. Recently this myth has been elucidated by Goux who points out that Oedipus, the failure of the hero initiation, is really the first philosopher. But in his interpretation the main weakness is his handling of the Sphinx. He interprets the Sphinx as the lost bride of the hero who comes to haunt Oedipus. However, perhaps a deeper interpretation is that the Sphinx is the observer of Oedipus the autopoietic system. In other words the Sphinx is the self-observation by Oedipus of himself. There is not doubt that she is his anima. She guards the gate way into Thebes as the wise old man, i.e. Teresius, guards the gateway out of Thebes. As Jung points out the Self as the totality of who we are is made up of Ego, Shadow, Animus/Anima and Wise Old Man/Cathonic Female. In the myth of Oedipus we see the anima guarding the gate into his completeness in marriage and kingship just as the Seer and Wise man guards the gate from which Oedipus will be expulsed into old age as a wandering blind man. These are the three phases of Oedipus's life, childhood, adult hood and old age that we see acted out in the play by Aristophanes. These are the three stages referred to in the riddle. As a child he walked on four legs, as an adult two and as an old man used a cane to feel his way long blindly. Oedipus, the pharmacon embodies the paradox that these three stages are parts of the life of the same person. In other words change in life remains the same for the individual. This is very similar to autopoietic theory that uses the organization of the system and the structure of the pattern to explain the sameness of form in the process of forming itself. In other words time is introduced and is counter balanced by persistence. Similarly in Oedipus his fated self is what persistently ties together his childhood, adulthood and oldage. For him there are many discontinuities that must be crossed, like his expulsion from home, and his leaving home to save his parents only to end up doing the crimes he was trying to avoid and his self-expulsion from Thebes as pharmacon to wander blindly around the world until he finally finds a peace becoming a seer himself and creating an initiation ceremony for the sons of kings. All these discontinuities in his own life are like the discontinuities seen in the riddle and it is like the discontinuities seen between the explanatory levels brought together in formal structural systems theory. Bridging these gaps are the fundamental problem and Oedipus does it intellectually by using self-reference. Without words he indicates himself. In his life in old age he becomes like the seer Teresius gaining wisdom from his fated experience like Teresius did himself before him. Wisdom breaches the discontinuities in life as self-indication that avoids words does intellectually. Thus wisdom and self-reference are fused. That is why the Wisdom of Apollo is "know thyself" and "nothing to excess." Oedipus ultimately did know himself but he failed to understand the meaning of hubris, i.e. excess in the self, like excess of curiosity and searching for the truth which is what brought Oedipus to his downfall. The fated individual fails to combine a respect for hubris with self knowledge. True wisdom encompasses both. The fated individual knows themselves though their

excesses. The ultimately wise one knows themselves in temperance, i.e. as Plato says combines Temperance (nothing to excess) and Wisdom (Self Knowledge) with Courage and Justice. Oedipus was a tyrant, i.e. was unjust, and lacked temperance but had courage and ultimately wisdom.

When we recognize the inner logic of autopoietic theory and the Oedipus myth we see how deep this theme is in our barbaric civilization. The split between the anima of Oedipus as Sphinx Questioner and Oedipus himself as Answerer is like the split between the observer and the autopoietic system set up artificially in the theory. The question points to changes in the autopoietic system over time, i.e. from youth to adulthood to old age. Oedipus by his existential self-reference ties together these various stages of life within the essence of Man as species. The discontinuities over time are like the discontinuities between explanatory registers. The problem is to explain how essences can change over time discontinuously. This can only be done by appealing to meta-essences. Essences are constraints and meta-essences called by Derrida Traces are constraints on constraints. Organization is different from essences. Organization is the ordering of components or attributes or relations at the meta-level. Something can have the same essence but be disorganized. A defeated army that has lost its organization is still an Army. A pie smashed in someone's face is still recognized as a pie. Organization is the appearance of Nomos within the Physus. The autopoietic system is a machine so is entirely physus. The observer is entirely logos. The non-dual between the physus and logos is order (nomos). That is why we can have mathematical theories that describe the actual working of nature. How that can work is one of the biggest cosmic mysteries ever as pointed out by Einstein which is the foundation for Science. Autopoietic Observer theory maintains the dualism between physus and logos basic to our worldview in the discontinuity between observer and autopoietic system. We must distinguish Classes of abstraction (ideas), Kinds of essences, and organization at the meta-level and structure at the lower level. Organization and structure are both exemplifications of order. One is transitory and the other is persistent. We project abstractions by logos onto this persistent or transitory ordering. We discover constraints within the attributes of these systems and thus understand their essences. Components have different essences than systems because of emergent discontinuities. Essences are the constraints on the changes in the attributes of either systems or components. Meta-essences are what allow the essences to transform fundamentally producing discontinuities in the unfolding of the system or the component. Organization may change without disturbing the essence. If the essence changes in a way allowed for by the meta-essence then organization will have to change to compensate. Different essences have different organizational possibilities this is what the term emergence means. As we move from explanatory register to explanatory register the essences involved change. The essence of a structure, a form, a system are very different, that is to say the constraints of their attributes are different due to emergence of very different characteristics at each level. Structure orders patternings. Organization orders meta-level nodes and their relations. Forms have their own ordering specified by the formalisms. All of these orderings explore the possibilities given by the essences that constrain the attributes. If the essences change in some meta-essence transition then all these orderings are going to change in response. This is what happens in genetic development of the organism. New orderings appear at each developmental stage applied differentially to the various explanatory levels.

Discontinuities between stages of life or explanatory levels are produced by meta-essences. The problem is to find a way to understand across these discontinuities. Autopoietic Theory manipulates the discontinuities in a sophistical way to hide the ultimate discontinuity between observer and autopoietic system from view. It attempts to save itself this way from utter paradox but to allow limited paradox. In so doing it exploits the difference between the existence of the

individual and the species essence. Similarly when Oedipus points at himself he exploits the fact that he is referring to his species and himself as particular individual at the same time without words. This access to the existential by way of self-reference is what is common in the solutions of Autopoietic Theorists and Oedipus. Oedipus was not just the first philosopher but also the first Autopoietic Theorist. But Autopoietic theory does not ultimately save itself from this ruse just as Oedipus does not save himself. He enters the city but then must engage in investigation until he finds that he himself is the pharmacon. Similarly the autopoietic theorist once he enters the maze of autopoietic theory must search around until he discovers that he as the observer is the problem with the theory and he discovers that all the paradox that he was trying to escape is placed in the observer from nowhere who is himself.

What Goux fails to explain adequately is why the Sphinx dies when Oedipus presents he with the answer. He says that it is the bride wasting away because she has been rejected by the hero. This may be true at one level. But when we understand that the Sphinx is Oedipus then what is wasting away is part of his self. If he had failed the test of the riddle then he would have died. If he wins the contest then the questioner dies. The Sphinx and Oedipus are exclusive of each other which is the opposite of marriage. I believe that the Sphinx is like the theorists questioning of himself as observer. When the Theorist settles for a superficial answer the questioner dies. Similarly with Oedipus the Sphinx is the half way point between his two crimes. He has killed the father and is about to enter the greater crime of replacing the father and marrying the mother. The Sphinx is his own self doubt, his own questioning of himself. The Sphinx asks who are you? This is Oedipus asking himself who he is via his anima. He answers by pointing to himself instead of asking about the nature of the discontinuities in his life. In other words he accepts the superficial existential answer rather than delving more deeply into the nature of his Being. Because he does not respond to this self-questioning properly he goes on to commit greater crimes. As Goux points out each of his crimes are against the major emblems of the Indo-European society, i.e. the crime of the intellect, the crime of sex, and the religious crime of killing. The Pharmacon breaks these taboos. Another poignant example of this is Odysseus who is also a pharmacon. His intellectual crime was the Trojan Horse. His sexual crime was the rape of the women in the temple of Athena. And the religious crime was the taking of the image of Athena from her temple. For this he was cast into Oblivion in the Sea. Oedipus and Odysseus are two examples of the Pharmacon in Greek Myth. They are also examples of the autopoietic systems theory mythologically expressed in very different ways. See my book <u>The Fragmentation of Being and The Path beyond the Void</u> for more about Odysseus and Autopoiesis.

When we connect Autopoietic Theory to its mythological roots we get a very powerful image of what this representation means to us today. We can also see what the resolution we have proposed for the theory might mean. For Goux the resolution to the Oedipus mystery is the completed initiation of the hero. It is the aborted initiation that leads to the impasse of the broken taboos that shows us the Pharmacon as the opposite of the hero. However there is an intimate relation between the pharmacon and the hero and city founder though the wise man which the pharmacon becomes at the end. The appeal to supra-rationality is like the advent of the wisdom of the pharmacon that initiates the sons of the hero and city founder. We do not learn the secret of what Oedipus tells T. That secret is equivalent to the emptiness of the anti-paradoxical supra-rational. It is the antidote which cures both the king and the pharmacon together. It is the dual of the question that the sphinx asks. The sphinx asks what has four, then two, then three legs. That is nine legs altogether. What is left out of this to make a tetrad is one leg. This is to say what unifies the diversity of things with legs. Oedipus pointed to himself as the man that unifies them in time. But what is it that unifies them in the present, i.e. all at once? What unifies them all at once is that they are all legs. They are multiple images of the same thing. The one leg is

multiplied and enantimorphically rotated to produce the difference between left and right. When we take away the enantiomorphism and the multiplicity we have one leg. This is what in Zen is called the sound of one hand clapping. It is equivalent to the sight of one leg walking. It is supra-rational unification. All the legs are one leg at the same time. Since we have dealt with youth, adult and old age then all that is left is death. The one legged one is the dead one. In other words the one that cannot stand is the crippled one. It is Oedipus the lame whose fate leads to death and destruction. Perseus who figures prominently in <u>The Fragmentation of Being and the Path Beyond the Void</u> arrives with one shoe. The supra-rational one is simultaneously in all the explanatory registers without interfering with itself, it is the one who is in what Dogen Kaigen calls existence-time. The father gives the son a wound in his foot. His name means the lame one. Yet despite this deformity neither the father nor mother recognized him. Wounding is a persistent theme in Indo-European initiation societies. Odysseus was wounded by his grandfather the wolf-man. The wound that does not heal appears in the Iliad as the character who is left behind but must be fetched in order to win the war. Odysseus is sent to fetch him. Beneath the surface of the Oedipus myth is the deeper meaning in which Oedipus is the one that is left out of the riddle, i.e. the one footed one, and who completes the riddle giving us ten feet a whole tetrad. Thus another possibility is pointed to beyond essence and existence. This is the possibility of the supra-rational unification which contains multiplicity in unity and unity in multiplicity without self interference.

Quantal Theory of Paradox and Supra-Rationality

We may push this concept of using supra-rationality to balance paradox in Autopoietic Theory by appealing to the concepts of Steve Rosen to understand the relation of Paradox to the Supra-rational Steve Rosen points out in his various papers that we can look at the anomalous topological structures of the Mobius Strip and the Kleinian Bottle as means of understanding Paradoxicality. In discussions with him I have modified his theory slightly to account for the relation between supra-rationality and paradoxicality. In this modification of his theory the lemniscate which is glued together to form the Mobius strip is seen as representing the supra-rational, non-dual, non-nihilistic distinction. The Mobius strip and then the kleinian bottle are seen as quantal steps toward paradox. The final step is reached when we arrive at the hyper-kleinian bottle which defines the sphere of ambiguity which is purely paradoxical. The Hyper Kleinian Bottle is composed of two Kleinian Bottles that share the same circle of self-interference. In the fourth dimension these become a sphere of ambiguity. When you enter it you cannot tell which Kleinian Bottle you are in from the pair. The lemniscate shows us a two sided surface that is twisted multiple times. Its edges can be fused to create a Mobius strip. Two Mobius strips can be fused to create a Kleinian bottle. Two Kleinian bottles can be fused to create the Hyper Kleinian Bottle and they define the sphere of ambiguity.

What these anomalous topological surfaces show is that we do not gradually go from supra-rationality to paradoxicality but instead the degeneration occurs in quantal steps. We can use this mathematical model to understand the relation paradoxicality and supra-rationality in autopoietic theory. What we see in this model is that we start with something that is clearly two sided and by fusing it to itself we get something which is one-sided, i.e. is non-dual like living-intelligent chiasma in autopoietic theory. But if we fuse it again we get something that is closed yet open which is the Kleinian Bottle. In that bottle the surface is the same on both the inside and the outside. Now notice that these duals inside-outside and open-closed are exactly what are split between the observer and the autopoietic system in classical autopoietic theory. At the next stage the two Kleinian Bottles intersect at the same self-intersection circle and so one cannot tell which

one is in. If we think of the Observer as one Kleinian Bottle and the autopoietic system as the other then what we see here is the ambiguity between the two resolved in the sphere of ambiguity where one cannot tell which one is in. From the point of view of one it is the observer and the other is the autopoietic system. For the other the situation is reversed. But the two together create a higher ambiguous non-dual surface where they are both the same.

In this way using Steve Rosen's deep insights in to the non-duality of anomalous topological surface and how they can be used to model other kinds of non-dual relations like those in autopoietic theory we see that the entire spectrum of quantal jumps from supra-rationality to paradoxicality is a prefect model of the structure of autopoietic theory itself. These topological structures give us direct insight into the emergent relations between the various aspects of the theory and its relation between the supra-rational and the paradoxical. Topology is the study of skins. In these figures there are anomalous relations of orientability that occur as rare events in the interaction of the skin with itself. Thus we can see how skin can figure at the various quantal levels of topological self connection. When we look at the skin of the autopoietic system we normally do not take into account these anomalous possibilities. But we can think of the Kleinian Bottle as the perfect model of the Autopoietic system from a topological standpoint. We see it as something with an inside and an outside it is both open and closed at the same time. It is the same surface that we see on the outside and the inside. The surface is non dual. Locally we can think of this as the difference between intelligence and life but globally there is non-duality where they are the same. This difference between local and global allows us to differentiate them while still understanding their non-duality. What is prominent in Autopoietic Theory is an appreciation of the Mobius Strip quantal level which is merely non-dual and does not have inside/outside and open/closed properties. What is missing is how these inside/outside and open/closed properties arise as we move to the next higher quantal step. This is hidden by the separation of open/closed and inside/outside between the Observer and the Autopoietic System. It is also difficult for Autopoietic Observer theory to address what occurs at the Hyper Kleinian Bottle level where the Autopoietic System ~~IS~~[1] the Observer and vice versa and the totality of the pardoxicality is entered. If we take into account these emergent properties and their interrelation then we can see that there is a way to see autopoietic observer theory as supra-rational modeled on these anomalous topologies. The self-destruction of the theory can be stayed and we can have a direct pointing similar to that in a Zen Koan for a moment. But this is no longer science. The point is that in the cancellation of the Supra-rational and the Paradoxical the quantal stages exist as if frozen in time. They are all existent together and we are merely looking at different quantal levels at different moments. The true void is the gap between the quantal levels. It is what is indicated by their emergent differences.

The Sphinx and Oedipus are like the Hyper Kleinian Bottle, This is to say like the observer and the observed autopoietic system they are enantiomorphic duals of one another. This is expressed in the Sphinx and Oedipus by their relation of male/female and man/animal. Each one is like a kleinian bottle in which is open/closed and internal/external in non-dual ways. Their opposition is expressed in terms of questioner/answerer and the nexus of that is the enigma. The enigma, or riddle, is like the knot of self-interference because it binds the Sphinx to Oedipus and vice versa. The Sphinx is like the conscience of Oedipus. It calls his attention to his life's stages but he merely answers with self-reference rather than thinking more deeply. The separation of Oedipus from the Sphinx is just as enigmatic as the question that binds them and presents an either or situation to them in which one shall die. Oedipus is presented when he looks at the Sphinx with something outside which is an image of his Anima inside. The sphinx is the doorway into

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[1] Cf. Heidegger and Derrida on ~~Being~~ (crossed out)

disgrace and a warning. The exit from the city will be though the wise old man Teresius. Outside the city he kills his father. Inside the city he kills his mother. The two taboo crimes occur in terms of inside and outside. The clever intellectual trick by which he "wins" appears on the boundary of the city. The father is killed on the road at a three way fork. Within the city Oedipus usurps his fathers place and takes his rightful place. He is the sun so he should be the inheritor but he is also the killer of the king so he is simultaneously an usurper of his rightful thrown. This simultaneity of right/corruption is like the simultaneity of life/intelligence that is the limited paradox of autopoiesis. Oedipus carries on the Patriarchal line and severs it at the same time. Within the city he marries his mother and becomes both husband and child simultaneously. The offspring of that marriage are both his siblings and his children at the same time. This kind of contradiction destroys the genealogical chain. It places him in a position similar to that of the individual within evolution which is both the source and the result of the species. In both cases it is time that solves the quandary that exists if we just look at the contradiction of the categories. The solving of the riddle is the third crime, the intellectual crime. His answer is a trick like the Trojan horse is a trick. His self-reference is a way to quickly get past the external problem of the Sphinx without looking deeper into who the self is that he is pointing toward.

If we look at Odysseus equivalent intellectual crime, his metis, trickery, we see that it was also meant as a way to get into the city. We also notice that it was a situation in which what was inside the horse was different from what was outside the horse. The Trojans did not look deep enough at the horse to discover what was inside. Oedipus also meets the equivalent of the Sphinx at the city gate in the form of Helen who talks to all the men in the voices of their wives to try to make them betray themselves. In order to do that she would have to know who was inside the horse. Thus Helen is an example of the inverse dual of the Sphinx as an externalized Anima who knows what is inside the horse. Here inside and outside are mixed up just as with the outward projection of the Sphinx by Oedipus. When the Acheeans get into Troy they break out and destroy the city from the inside just as Oedipus does to Thebes when he enters bringing plague with him. The men of Oedipus rape the women of Troy in the Temple of Athena and then even carry off and destroy the image of the Goddess. Thus like Oedipus two crimes are committed in the city. One is like a rape, i.e. a marriage with the mother that breaks the taboo of incest. The other is a sacrilege against the king of stealing his throne. The stealing of the icon of Athena is like the stealing of the kingship. The rape of the women is like the taboo incest with the mother. Both crimes go along with the pillage of one city and the plague on the other. Odysseus is cast out to be lost in the seas for his crime as scapegoat. Oedipus is cast out by himself for his crimes. His last act as king is to punish himself. He puts out his own eyes. Odysseus calls down the wrath of Poseidon on him by revealing his name to the Cyclops. He at first calls himself ***nobody*** in order to escape the cave of the Cyclops then in a fit of hubris reveals who put out the eye of the Cyclops. Putting out of eyes occur in both stories at the beginning of exile. Both men are pharmacons, i.e. those who take on the crimes of the city and by their expulsion cleanse it.

Autopoietic theory commits the same three crimes. It commits the intellectual crime of allowing paradox into the city of science. It brings with it the plague of total paradox that it hides within itself cunningly by the separation of Observer from Autopoietic System. It commits the crime of usurpation because it substitutes the existent for the essence which in the eyes of science is the key to all beings especially living beings as representatives of their species, i.e. their genealogy. It denies the importance of genealogy by concentrating on viability of the individual. It commits the sexual crime in this case by taking the focus away from sexual reproduction as the means of survival of the species. The result is the expulsion of autopoiesis from the city of science and the result is blindness because the observer cannot see into is object, i.e. the object is pure Kantian noumena.

The crime tells us something about the city of science. What is never breached by interpreters of the Oedipus myth is the fact that all this comes from the father of Oedipus' crime of homosexuality against a youth who committed suicide. Thus the crimes of the father are visited on the sons. Self death, like apoptosis in cells leads in reverse to the autopoietic anomaly of Oedipus. Also what is little mentioned is the city. The city has the plague, the city has the sphinx, the city has the destruction of its royal house. Something in rotten in the city and not just in the house of Oedipus and his father. Similarly something is rotten in science for it to give rise to something like autopoietic theory, and that something is the suppression of all paradox. When paradox enters the city of science it comes as a plague. It stands at its gate like a monster and it rots the hierarchy of control we call peer review and criticism. What is excluded becomes a monster, a plague, a rotting within. Suddenly we get images of science which is like the mead hall in Beowulf that is plagued by the monster Grendal, When Beowulf gets to the bottom of things he finds Grendal's mother who is like the sphinx. Like the terrors of the unconscious the excluded and suppressed paradoxes in science roam freely beyond the pale of the acceptable. In Autopoietic Theory these ghouls find an entry into the hallowed halls of the scientific tradition. James Gardiner gives a picture of this in his rendition of <u>Grendal</u> in which the monster is a Sartrean nothingness.

Looking Deeper

Are we going to be like Oedipus and not look deeper into ourselves but merely settle for superficial answers to the questions we pose to ourselves? Are we going to be lost like Odysseus who could not make up his mind to follow Agamemnon or Menalaus? Will we settle for being the pharmacons of the scientific establishment? We need to look into the Being of this unique being who creates all Being from out of himself to be his own home.

All these questions revolve around the fragmentation of Being which I have explored at length in my other writings. I will give a brief explanation here of this little understood phenomena in order to create a context for looking deeper into the oedipal autopoietic observer theory. There are four kinds of Being which we can summarize in the following table:

Pure Being -- present-at-hand -- pointing

Process Being -- ready-to-hand -- grasping

Hyper Being -- in-hand -- bearing

Wild Being -- out-of-hand -- encompassing

Each of these are meta-levels one above the other. These meta-levels come to an end at the forth level and the absence of the last meta-level is unthinkability that we can interpret as empty existence. It is these kinds of Being that give us the basis for understanding the full import of the pharmacon and of autopoietic observer theory which is a modern example of this age old mythological daemon. Looking into ourselves is looking into the fragmentation of Being because it is by this that we project the Indo-European worldview. The anomaly of the pharmacon is the inverse of the image of the emergent event. The emergent event is how new things come into existence like the appearance of a god such as Dionysus arising from the sea or Aphrodite on her sea shell arising from the sea. All emergent events must pass though each of the levels of the kinds of Being to be genuinely new. Similarly the pharmacon which takes the sins of the city

away must pass though all the levels of Being in its exit. In other words the generation, coming to completion and expulsion of the pharmacon is a process that is the inverse of the coming into being of the emergent event. The emergent event comes from outside and repatterns the world inside. The pharmacon comes from inside and is pushed outside. It is these epiphanies that show us the structure of our world. Autopoietic Theory has the same structure as the pharmacon and the emergent event.

So lets first look at Oedipus. Oedipus breaks all the most basic rules related to the patrimony. He is the first anti-hero. A hero has glory while the one like Oedipus has only shame. The emergent event is glorious while the breaking of the taboos is horrific evil. Our worldview is created in such a pattern that it produces these anomalies of glory and horror and evil which exemplify its deep structure. It is the anomalies that tell us the most about the deep structure of the world, i.e. the breaking of norms not the norms. We can see the kinds of Being in the entry of the Trojan Horse into the city. The horse itself is a frozen image that was on wheels thus it was a combination of static and dynamic. Thus it gives us an image of Process and Pure Being combined. Pure Being is the static spacetime block of Parmenides. Process Being is the pure flux of Heraclitus. The self grounding ontological monolith of Heidegger is a combination of these two. When the Horse is taken to the city Helen comes and talks to the men in side. This scene and the indecision what to do with the horse that precedes it is the representation of Hyper Being. Hyper Being is the undecidability that Derrida calls difference. Helen knows what is inside the Horse in order for her to be able to call out to the men. The men cannot decide if it is her voice or that of their wives. It is this moment of indecision which could have thwarted their mission of destruction. The out break from the horse and the pillage of the city is the image of Wild Being. So we see that as the horse comes into the city it goes though all the stages of the kinds of Being as it enters. The horse is an emergent event that destroys Troy. This is the clearest example of the emergent event going though the stages of the kinds of Being that I know.

When we look at Oedipus we see that he leaves Thebes and then returns and then leaves again. He leaves as an a child outcast and then he leaves again as an adult pharmacon taking the sins of the city with him. He only enters once when he confronts the Sphinx and answers with self-reference without self-knowledge. When he leaves the second time he has self knowledge and he acts on himself by putting out his eyes. He is the king who exiles himself. He is the one who seeks too much after the truth and thus destroys himself. The process by which he finds the truth about himself is an uncovering. This uncovering is the representation of Process Being. The truth itself in its full manifestation is the representation of Pure Being. That truth is so terrible he puts out his eyes. This is because the Pure Truth is so terrible it is like the sun that blinds him. With the Pure Truth manifest he expels himself from the city. If the exit from the city is Pure Truth then we might expect that the riddle of the Sphinx is Hyper Truth. Hyper Truth is that which reveals and conceals at the same time. The riddle when answered reveals some things but at the same time concealed some things. The Wild Truth is represented by the secret that he tells the king of Athens. It is by the Wild Truth that he initiates the sons of kings. In the Wild he stands on sacred ground as one who is impure and is thus purified. It was also in the Wild that he received the wound that would not heal as his father exposed him to the elements as a babe. The wound received in the wild at the beginning is equal to the secret that he tells in the end. The wound and the secret of kings given by the wise seer Oedipus is sacred.

There are four aspects of Being they are Truth, Reality, Identity and Presence. We note that each aspect appears at each meta-level giving us sixteen facets of Being. They are like a mobile whose facets self-intersect as they turn. They together define the paradox of Being. Oedipus represents one of these aspects in the four kinds of Being. Oedipus represents Truth.

Autopoietic Theory is instead a play on the aspect of Identity. In autopoietic theory we see various kinds of identity interwoven. First there is the Static Form which is identical with itself. When we introduce structure and organization we see process enter the picture. At that level what is identity becomes more complex. As we come back to form we see that Form Forms itself and gives us a picture of ontological monism which is the combination of the dynamic and static. Hyper Identity comes when we jump to the external system seen by the observers that come from no where. This jump from Autopoietic Form to Autopoietic System is the advent of Difference. Wild Identity comes at the point where we realize that the Observer is the Autopoietic System and that the theory is a whole which hides many of its features in the observer. When the observer and the autopoietic system collapse together this is Wild Identity.

Any of the aspects could be used to produce an image of the autopoietic system. The ultimate paradox is Being itself that in which all its facets self-interfere. The antidote for this is existence which we realize is empty. Existence appears when we realize that the presentational system of Being is entirely illusory. When we apply the supra-rational to the autopoietic theory then we destroy its efficacy as a theory completely. It becomes a direct pointing to the suchness of existence. By balancing Supra-rationality and Paradoxicality we both save and destroy Autopoietic Theory.

But at least we have understood it more deeply than we might have otherwise and thus may understand some aspects of our worldview better and better understand autopoietic phenomena that appear in our world as anomalies.

If we look into the subject we find that beneath the subject object dualism that appears at the level of Pure Being there is Dasein of Hiedegger who is projecting the world ecstatically. But beneath dasein at the level of Hyper Being is the Query and beneath that at the level of Wild Being is the Enigma. It is only when we burst though the enigma that we reach the bedrock of existence that is empty. The Sphinx is the image of the query. Terresius and Oedipus as an old man about to die who becomes a sage is the image of the enigma. The wisdom of Oedipus is a secret that is not told to us. That secret is the emptiness of existence. The wisdom of the Wise Old Man is feminine celestial.

We end by positing the basis of an ontological gender theory. In that gender theory each level of the archetypes has a different kind of Being for Men and Women.

Celestial female wisdom (sophia)	Terrestrial Male Wisdom
Wise old Man = Hyper	Cathonic Female = Wild
Anima = Wild	Animus = Hyper
Man = Process	Woman = Pure

The confrontation of Oedipus with the Sphinx shows us the image of Man with his Anima. The Anima is a monster while the wife is merely an apparent wife but ultimately she is split between wife and mother. Thus the outward woman is an appearance and thus of Pure Being. The inward

appearance of woman is a monster. This can only happen because man is at his basic level connected to process while as an animus to the woman he has Hyper Being. Man is bound at the level of essence while behind the image of beauty is the female that like Thaetus knows how to transform. The man that knows how to transform is the Old Man of the Sea that Menalaus captures on his way back from Troy. Thus the Hyper Being meta-essence occurs at the level of the animus for women and at the level of the wise old man for men. Oedipus confronts the Wise old man in Terresius but does not listen to him and thus is transformed eventually into a blind seer himself at the end of his life. When that occurs he understands the wisdom of his mother/wife who told him not to pursue the truth too deeply. In that she was celestial over him with he feminine wisdom that he came to appreciate.

If we look at the woman we see that she is split between appearances (seems to be a wife) but is really a mother. As a mother she understands meta-essence transformation which is exactly what the Sphinx as monster asks him about. As a cathonic female, i.e. a female that knows the earth wisdom she goes mad, like the Furies when the truth is revealed fully and hangs herself. Ultimately she has terrestrial male wisdom understanding the wisdom of the father who wanted to kill the son at birth.

If we look deeply into ourselves we find that we are all the characters in the Oedipus myth simultaneously, i.e. supra-rationally and that this is in fact the power of the plays. Deleuze and Guattari in their Anti-Oedipus do not so much destroy the Oedipus complex as expand it to include a cast of thousands in the Schizophrenic. They see Schizophrenia as the natural outcome of capitalism. The scientific establishment is like capitalism and the schizophrenia is the paradoxicality they are trying to suppress. There are three stages of the development of Capitalism. There is the savage, the barbaric and the capitalist stages. Oedipus represents the tyranny of the barbaric stage. He is the first philosopher, the one who would know everything. In modern academia knowledge has become the capital and philosophy has fragmented into myriad disciplines. But savagery and barbarism is close under the veneer of civilization. We saw this is the advent of the world wars and the after math of myriad of small wars since then in the colonies. If we really look deeply into ourselves we must admit with Nietzsche that we are the destroyers of the Earth.

Male wisdom is that the woman can be celestial. Female wisdom is that the male can be terrestrial. In other words, male and female are natural complementary opposites beneath the nihilistic and dualistic reifications that we create of each other. The hero like Achilles and the pharmacon are nihilistic opposites. They are the self-made man and the self-destroyer. Oedipus embodies both as he enters the city and as he leaves it.

The city is a social nexus and the autopoietic system appears in that fabric arising out of it and returning to it. We need to understand that fabric that is the ground on which Oedipus naturally appears. This is the goal of Reflexive Autopoietic Systems Theory which extends autopoietic formal structural systems theory. In that process it sets Autopoietic Theory itself on firmer ground by relating it intrinsically to other theories in a fundamental way.

Reflexive Autopoietic Systems Theory

We are talking here about anomalous systems. We need a theory of anomalous special systems that has deep foundations in the nomos and cannot be rebuked as a sophistry. We want to extend autopoietic systems theory into the social in a natural way. We want to avoid the problems with

classical autopoietic systems theory. The answer to all this is Reflexive Autopoietic Systems Theory. We will here give a nutshell description of that theory. It starts with the distinction between system and meta-system or environment. Once we have drawn that distinction clearly we identify three special anomalous systems that form quantal stepping stones between the system and the meta-system. These are called the dissipative, autopoietic and reflexive special systems. Dissipative special systems are described by Pirgogine as dissipative structures. Autopoietic Special systems have the characteristics that Maturana and Varela describe but a different internal structure not based on the distinction between structure and organization. Reflexive Social Special Systems have the qualities that O'Malley talks about in The Sociology of Meaning and Coutu talks abut in his book on Tendencies in Situations. Special systems are partial systems and partial meta-systems. They have a special structure that is based on hyper-complex algebras and thus have deep foundations in the nomos. There are also anomalous physical phenomena that represent each emergent level of the special systems. They together form a hinge between the system and the meta-system. Reflexive and dissipative systems together model dynamic balance while Autopoietic Systems model perfect balance. Their study may be called Holonomics because they are like the Holons that Koestler describe being half way between Systems and Meta-systems. They are described in detail in my research summary on Reflexive Autopoietic Systems Theory. The problems of classical autopoietic theory do not occur with the new theory because it has a different basis for definition based on algebras. The significant thing about these special systems is that they are ultra-efficient. This characteristic alone makes them worth studying.