Self-Realization

An Essay by

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Door Into Summer Press

Dedication

This essay is first of all dedicated to you, the reader. I am simply recording the journey I have already undertaken and am well nigh to finishing. You, on the other hand, might consider putting one foot in front of the other and getting on with it.

It is also dedicated with love to Jay Burke, Jim McDonald, and Bob Roper who have selflessly served most of my lifetime as sounding boards and have provided insightful feedback loops for even my craziest ideas; to Joe Deal (who I miss enormously) for also listening and then yanking me back for regular and essential reality checks; and to my wife, Trudy, for somehow dredging up the emotional stamina to put up with all this, while simultaneously and frequently saving me from myself.

Warning and Foreword

Not only does this short essay contain a dedication, which you might already have skipped over being the type that doesn't read front matter, but you now have to read a foreword and then plow through an introduction. Of course, if you are a front matter skipper you will miss all of this, and the first paragraph here will have been wasted anyway. But if you get through this warning and foreword, I suggest you also tackle the introductory material to get a contextual feel for the rest of the essay.

Here goes the first warning: if your concept of truth relies on the downhill connection from God to mere mortals, you should stop reading this essay with the period at the end of this sentence. If you are still reading, it's possible that we could engage in productive dialogue on truth, knowledge, justice, apple pie, and a myriad of other topics. However, this is an essay, and there is no chance for the give and take that would exist in a cozy study with a warm brandy.

This is a monologue, where I have the stage exclusively to try and relate my opinions in the manner I perceive to be best suited to their presentation. While this format eliminates your quizzical interruptions, snide remarks, and guffaws of amazement, I have tried to anticipate your questions and objections as best I could. The advantage of the monologue allows me to do this anticipating with the timing, sequencing, and emphasis of my choosing, which hopefully will be more productive than the bickering of most dialogues. After all, I know what I'm trying to convey and you don't.

Before proceeding you should note a second warning: this essay is not the quick and easy read that this slim volume might make it seem. If I have gotten the tone, style, and clarity of the presentation right, you will be engaged by the message and proceed at a pace that allows contemplation and thought.

Your final warning: this essay might not contain a single original thought. After all, it would be presumptuous to think that it might contain philosophical or metaphysical ideas not expressed by the great minds that have spent their lives in pursuit of these subjects. However, it is my hope that at least the perspective and focus is challenging and the synthesis of other people's creativity provides a new direction for thought about mankind's meaning and place in the universe.

Introduction

In looking back on my first essay, "A Trinity for Living," I realized that I had failed to cover a lot of ground that I wanted to explore. Trinity dealt with such diverse elements of living as personal relationships, formal and informal education, physical and intellectual experience, art and aesthetics, the creative experience, and the purpose of life, but all as a formulaic method rather than an analysis of why this approach should be taken.

Only the topic of personal relationships, which is the backbone of Trinity, is presented in enough depth for me to feel I have had my say. All the other topics necessary to travel the road to the importance and rewards of personal relationships are given short shrift. I set out to rectify this by writing new essays on education, religion, and art.

When I started to write the essay on education, a subject dear to my heart and increasingly ignored in our society, I found that I lacked a fundamental building block in the logic I wanted to follow. The postulate in Trinity that the purpose of life is the fulfillment of potential couldn't be left just lying there without explaining "why" and "how" because it was the same "why" and "how" needed to explain education. In fact, the same "why" and "how" were needed to explain religion and art as well. As in my life, I found the concepts of education, religion, and art so tightly interwoven in my perception of the world that any attempt at trying to treat them separately kept morphing into a general treatise of how our physical and intellectual worlds fit together.

Once I accepted the inevitability of constructing a foundation on which specific personal philosophies could be built, I had to decide how little I could get away with as underpinnings. As a strong disciple of Occam, I decided to do a short work of pseudo-philosophy like "Trinity" to help the reader understand the process of self-realization as I see it. I say pseudo-philosophy because I intend to avoid wherever possible the use of formal philosophical phraseology; in fact, I will eschew "ologies," "ics," and "isms" except to urge their disregard in appropriate places.

This is not because several thousand years of philosophical thought is not pertinent. To the contrary, it is essential, but the written record of these thoughts is frequently so erudite as to be inaccessible to all but those who would make a life's pursuit of their intricacies. My goal here will be to present just meat and potatoes.

The essay also does its best to avoid questions of a metaphysical nature when it can, but some have crept in when I was not paying strict attention, and I found it too debilitating to the essay's objective to remove them in their entirety, so they stayed—forgive me.

Since I couldn't get rid of metaphysics, I decided to jump right in and get it over with in the introduction, so here goes. There are no demonstrable, metaphysical reasons for being. I'm not arguing that there *are* no metaphysical reasons for being, only that if they exist, they are unknowable in any classical sense except by a Kierkegaardian "leap of faith." If you can't accept this statement as valid, particularly if you are a creationist of any religious order, you probably are wasting your time reading any further and shouldn't have gotten past the Warning and Foreword. If you decide to go on anyway—good luck.

The Physical Universe

So where is that illusive meat that goes with the sack of potatoes that seems to make up my life? It is the meat of self-realization—the scope of one's personal universe. That is, your physical, intellectual, and emotional entirety—what makes you uniquely you.

This unique you did not spring forth fully formed; it has roots that stretch back to the very foundations of the universe in which we exist. That we exist at all makes us a part of the universe and subject to all of its rules and limitations, even though we can simultaneously hold the seemingly contradictable concept of the universe's infinity. But we will ignore this paradox for now because it is fundamentally a metaphysical problem.

So what makes up our personal universe and how is it formed? Ignoring the logical quicksands of realism and epistemology, let's just say that it's made up of our physical surroundings and our accumulated knowledge. That was easy. How this personal universe gets formed is the difficult part.

The physical universe is what it is. Any detailed definition of the physical universe is a waste of time for the surface examination being attempted here because of our constantly changing understanding of its nature. This said, however, the empirical body of evidence supports proceeding on the basis that some things we know about the universe are not likely to change with more knowledge of its nature. To put it more metaphorically, our knowledge of the universe is a lot like a star condensing from a nebula—there is a relatively solid core at the center with increasingly less solid material traveling outward from that core. We need only to build on that solid core of knowledge to make our points.

When the physical universe is wearing its infinity hat, it is hard to escape the logic that all things are possible in an infinite universe and the next logic leap as well—that all things have or will happen in an infinite universe. And if you really want to push the time aspect in your logic, you could claim that all things have already happened and will happen again in an infinite universe—et cetera, et cetera, and so forth (thank you, Mr. Hammerstein).

However, this piece of seemingly solid logic doesn't fit our current observation of the universe and how it works. The universe we observe seems to have lots and lots of rules that govern its makeup and its operation. Therefore, to postulate an infinite universe we have to expand the basic concept to include an infinite set of universes where each universe could have a totally different set of rules (thank you, Mr. Russell, for forcing us to deal with infinite sets). Now we've covered all the bases.

Why is the finite or infinite nature of the physical universe important to defining our personal universe? Because it is important to know that the universe we are a part of is, for all practical (non-metaphysical) purposes, governed by a definable set of rules, even though we keep adding to and modifying those rules as our knowledge base continues to grow. It is these rules that set the framework for our existence and the existence of our personal universes.

How do these rules get transferred to people and their personal universes? In an infinite universe, all things not contrary to the laws of that universe are possible, but the human mind is not capable of grasping the concept of infinite possibilities. Every conscious being has only their personal understanding of the universe with which to operate. If that being is rational, their mind works in rigorous hierarchical order with what it perceives as being real (existential), probable (theoretical), or possible (potential.) Your personal or usable version of the universe is therefore limited in its scope by your knowledge of the infinite universe's possibilities.

To put it another way, only things that you can at a minimum conceive of being possible have any significance in your personal universe. Therefore, your knowledge of the infinite universe limits the size and scope of your personal universe.

That's a nice flow-down of rules and order, but why to individuals of the human specie? Well, the flow-down might not be limited to humans. There is no reason to believe that there are no other rational beings in the universe—even for the religiously inclined, if we postulate any aliens to be similarly creations of a God (read "God" here and elsewhere in this essay as plural if you are inclined). There are also still questions about the consciousness of other animals on the earth, particularly the cetaceans, which could still turn out to be intelligent but just so different in their own perceptual realities that we cannot yet communicate. With all these possibilities, a quick overview of how we (or any other living creature in the universe) got to our current level of consciousness seems appropriate.

As far as we know, there are two very basic types of matter in the physical universe (for you physics buffs, I'm ignoring dark matter, anti-matter, the nature of light, string theory, etc.), elements and compounds. Elements have only physical characteristics even though they have potential chemical characteristics. That is, we can deal with elements primarily through the application of our knowledge of physics. When two elements are brought together that have potential chemical characteristics favorable for their forming of a compound, they will do so either with the application of energy or with a release of energy.

Dispensing with cosmology, let's just say that the workings of the universe are such that opportunity abounds for elements to meet in a manner that encourages the formation of compounds. These compounds in turn can and do form new compounds in a chain of compound forming throughout the universe that is staggering in its complexity.

When the complexity of a compound containing carbon crosses a fuzzily defined threshold, it is referred to as "organic." As our universe continued over billions of years (I'm obviously ignoring the religiously inclined groups that claim the universe's history can be measured in just a few thousands of years), some of the most complex of the organic compounds displayed a propensity for organizing themselves into patterns that were concatenating or self-perpetuating. This was either by accident (a random event), inherent in the rules governing our universe (inevitable), or by a willful act of God (religious, or at a minimum, metaphysical). Unless you have extreme religious views (in which case you should have stopped reading with the Introduction), it doesn't matter which answer you pick, since the rules and order of the universe took matter to the life nexus, regardless of why that threshold was crossed.

It should be noted that while a strict definition of "organic" restricts its use to carbon-based compounds, we shouldn't be too quick to jump on this bandwagon as most chemists agree that other elements have the potential to show similar variety in their ability to form complex compounds in favorable environments. So for our purposes, I would like to define organic as compounds with the potential for levels of complexity allowing the formation of patterns capable of concatenation, self-perpetuation, or self-replication—however or wherever you choose to define life.

Life, like the compounding of elements, just kept getting more and more complex until another fuzzy threshold was crossed and life became more than the ability to self-replicate. It became self-aware, and with that, it became self-directed. On this planet, it became mankind as we know it today. However, the key to the existence of consciousness in the physical universe (on earth or any place else) is a direct

consequence of the inherent nature of matter to grow more and more complex over time. This is true regardless of to what or to Whom you ascribe the reason for this fact.

So, we all start out with some rules: we fall down not up, we grow older not younger, energy is required to overcome inertia, etc. These rules come from the basic nature of the physical universe and are implicit in ourselves and the world in which we live.

Reality Limitations of Our Personal Universes

Primitive man was in touch with the realities of the universe on a first-hand basis only. This perception was through the senses common to most higher-level species. When the sun comes up, it gets brighter and warmer. When the sun goes down, it gets darker and colder. You can scoop up water in a container and take it with you, but you can't scoop up fire. Water comes from two sources, from the sky and bubbling up from the ground, generally making its way downhill to the ocean. What primitive man couldn't understand from direct physical contact with the universe were things like the weather.

To understand the more complicated rules of our universe, inquiry into these rules had to go beyond the simple sensory determinations we had relied upon in the past. This deeper inquiry into the universe's rules we generally refer to as science. When individuals apply creativity and work (an expenditure of energy) to scientific knowledge we have technology, the employment of our scientific knowledge for the benefit of society and its individuals.

Simple tools (basic technology) have been around as long as mankind. This is because tools were and are still used by the lower orders of life from which we evolved (became still more complex). These early tools fit handily into one of two categories: work saving or survival. It is difficult to postulate which came first, but the work saving tools were probably used primarily for gathering food, and the survival tools were probably used first for protection and then for aggression (sadly, recorded history might argue for a reversal of this survival tool order). Consequently, the use of tools was a big step up in mankind's understanding of the physical universe's rules and a clear indication of the ability to apply creativity to an understanding of these rules for its own benefit.

Similarly, social order is clearly evident in most of the immediately lower life forms. Social order serves the basic imperative of extant life—survival. If it didn't, it would be extinct rather than extant. Those life forms that employed social order for food gathering, protection, procreation, etc. were more likely to survive long enough to produce and/or nurture their replacements.

As the cognitive abilities of life forms increased with their complexity, the scope and flexibility of social interaction also increased. By the time Homo finally arrived at the top of the intelligence hierarchy, social groupings were well established. The scientific knowledge of how things work and the technological tools resulting from man's application of his creative intelligence to this knowledge led inevitably to a science and technology interaction with the societal group. In turn, this interaction set the scene for the love-hate, create/destroy, enable/limit relationship between society and technology that is evident throughout recorded history and continues today. It has been both an empowering and destructive feedback loop that continues to define the limits of our personal universe.

How does this feed-back loop limit our personal universe? Let's take science and technology first. What we can know of the physical universe beyond the limits of our

simple sensory inputs is limited to science's current understanding of its operational rules. As science's knowledge expands, the *potential* scope of our personal universe expands with it.

However, science is limited by its tools. When mankind first started its scientific inquiry, few if any tools were required. As we began to understand the world around us that we interacted with as a direct part of living, we expanded our inquiries to the macro and the micro to better understand the workings of what increasingly looked like an integrated universe. To carry on this macro and micro examination of the universe requires monumental amounts of applied technology.

So first, our scientific understanding of the universe is limited by the technology we use to conduct our research. Second, what knowledge we are able to gain with our less-than-perfect technology is all too frequently filtered in its dissemination by the social construct (a body of societal rules built up over time with the intent of protecting and facilitating the interactions of the societal group) in which circumstance has dictated or we have chosen to live our lives.

The social construct of man's early hunter-gatherer groups changed drastically with the introduction of agriculture. When some gatherer had the idea that the amount of ranging about required for gathering foodstuffs in the wild would be greatly facilitated by having the fruit, root, or vegetable growing both in close proximity to each other and their shelter, agriculture began. It had two primary social resultants: the societal group grew larger with the greater availability and dependability of food, and the already in place territorial imperative (thank you, Mr. Audrey) became stronger by forcing the societal group to defend its fixed-location crops at least through the growing season in order to survive.

With the growth in size of the group, it was possible and more efficient for individuals to develop more specialized skills. Those that had been gatherers and crop tenders separated naturally into those that could gather better and those that could tend better. The hunter that found himself better at skinning and curing hides did more skinning and curing and less hunting. Or in many societies this necessary skill was delegated to the women because it could be performed in close proximity to the children under their care, freeing the reproductively expendable men for the more vigorous and dangerous occupations of hunting and societal protection.

This gradual accumulation of specialties led to a much more complex interaction of the societal group's members. Instead of being able to communicate directly and instantly with those with which you worked all day, every day, it became necessary to seek out the individual having the needed skills and to communicate your requirements for their work. This required more complexity of language and ultimately a method for work-value exchange.

With the ability for at least some members of the social group to focus on a specific task, tools to make specific jobs more efficient began to be invented at a more rapid rate than ever before. Tool making, no matter how simple the tool, is technology at work— the application of knowledge about how things work in the existential universe.

(If you push here, it pops up over there. The harder you push, the higher it pops up. If I had something small enough and shaped to fit around this angle, I could push it harder. I believe this bone is about the right shape and strong enough not to break. If I grind the end down on this rock and then rough-up the area with a flint chip where I'm trying to get a grip on it, it will work just fine. Now I will be able to make twice as many in a day as I could before I had this tool.)

Science (understanding how things work) and technology (putting that knowledge to work in a practical way) began to play an increasingly important role in how, how fast, and in what direction society progressed.

As society grew and became more complex, the needs of society grew and required an ever more complex application of knowledge in meeting those needs. With the loss of mobility due to size and the availability of food production, concentrations of individuals in a single location increased rapidly. This urbanization brought pressure on the growing group of specialists to come up with ways to meet the requirements of their community. That is, it focused the successfully creative (the specialists) on using their knowledge of how things work to find practical methods of meeting societies demands. This focusing pressure is how society, the benefactor of new technology, links with science and technology in a feedback loop.

Knowledge of science is utilized through creativity to produce society-desired results. The society flourishes with this new application of science through technological advance and puts pressure on those with science and technological skills to find new answers to problems that have grown out of flourishing societies—a dynamic interaction.

This knowledge/society dynamic is the first important element of the self-realization process that sets intellectual limits for your personal universe. These limits are much less restrictive than those realized by your continuing interaction with the physical things around you. While your personal universe can be much more diverse and complex with these less restrictive limits, it is nevertheless still restricted by what science *allows* you to know and by what society *wants* you to know.
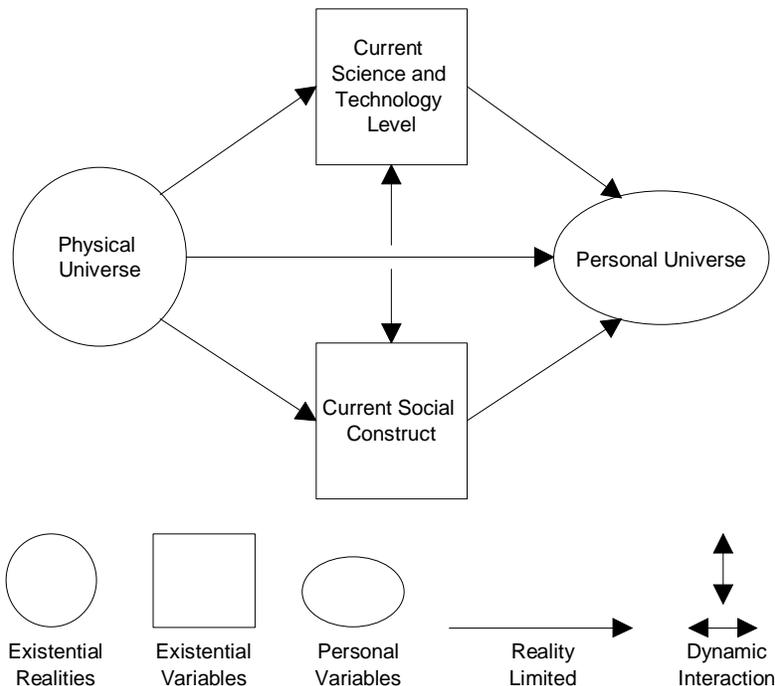
Unfortunately, the description of the knowledge/society dynamic above is an ideal one, and not the way it works most of the time (if ever). The reality is that while society is providing the focus on science and the pressure for technological advance in some areas, it frequently restricts science where conflicts are perceived. These conflicts are almost always between the values of the society and the facts of the science.

The most famous historical example of this is probably the conflict over whether the earth revolves around the sun or the sun revolves around the earth. Science clearly argued for the earth revolving around the sun, but the religious values in sway when Western culture was moving successfully out of the Dark Ages saw this bit of science as weakening the absoluteness of God and the general teachings of the Christian church about the God-man relationship. Religion ultimately lost this battle (thank you Copernicus and Galileo for standing tall), and as usual, the perceived conflict turned out to be more emotional than factual.

The most similar volatile issue of today is probably embryonic stem-cell research. Like everything else today, this problem is more complex than the one facing Copernicus. The issue follows a chain of rationalization from the creation of man by God in his image, to the sanctity of human life, to the defining instant when ordinary life becomes human life, to recognition of life elements having the potential to become human life, to any actions that might thwart potential human life elements from becoming such, etc. depending on which religious precept you wish to trace.

Regardless of a society's structure, the values of those in control of that society are adjunctive rules for living in that society. In a democracy this means that the largest subculture has the potential to impose its values on the rest of the subcultures making up the country. In the multi-racial, multi-ethnic, multi-religious society of the United States, this is a potential problem of enormous societal implication.

For the purposes of this essay, however, it is sufficient to say that the imposition of non-scientific or pseudo-scientific values on society is an inescapable reality. When this non-science interferes with or downright restricts science from the pursuit of real knowledge, everyone in that society is subject to a restriction of the potential size of their personal universe. Individuals must then work overtime to prevent the society in which they live from seriously limiting or preventing self-realization.

Working with Our Personal Universes

Structured societies by necessity treat everyone in the same social strata as equally as possible. It would be preferable to be able to leave the ". . . in the same social strata . . ." out of that declarative statement, but alas, it just wouldn't be true. However, in the face of this societal need to deal with everyone as just one more person due to the overwhelming numbers of people in the social group, the individual still has the opportunity to remain unique. One does this by applying intellectual processes to their personal universe in an effort to determine their personal values. These values are consequently as unique as are our personal universes.

To understand how we apply intellectual processes to our personal universes requires a bit of digression. We must briefly explore the history of logic and delve into fuzzy logic enough to get the flavor of how our brains work. Armed with this background, I shall attempt to provide as step-by-step instruction as possible for forming or rethinking your personal values.

Logic developed from the attempts of the early philosophers to be able to know truth when they found it. It is not an easy task. Of course, tagging along with the concept of truth was the concept of non-truth (falsity), and it didn't take long for the philosophers to see that proving something false was almost as good as proving something true. Unfortunately, this was such a tight pairing that for a few thousand years the philosophers essentially ignored other possibilities.

The position that concepts were either true or they were false fit in just fine when we arrived at the computer age because it is a binary concept, on or off, just like the

simple switches at the heart of computer logic. However, our general knowledge of the universe and its many mysteries made it increasingly clear to us that true-false, on-off wasn't the way things worked in the real world. The world seemed to work more like a rheostat than an on-off switch.

We came to this knowledge primarily because our growing body of scientific knowledge was getting significantly incompatible with the absolute nature of true-false limitations. The cosmological sciences flirted with infinity (anathema to the concept of absoluteness), quantum physics forced us to deal with uncertainty having a totally new set of logic rules (thank you, Messrs. Planck and Heisenberg), chaos theory forced us to rule out strict determinism (thank you, Mr. Feynman, for bringing it to my attention), and cognitive science is showing us that the inner workings of our minds do not employ true-false logic at all. This new knowledge of the physical universe has sent more than two thousand years of philosophy down the tubes.

But this is actually a happy event. We are about to embark on a whole new adventure in understanding—an understanding of the micro-macro universe, an understanding of the world we have made and can make, an understanding of our potential to have rational meaning in this meaningless universe.

The tool with which we will build this new philosophy has the incongruously sounding name of fuzzy logic (thank you more than anyone, I think, Mr. Gödel). Fuzzy logic ignores the whole infinity-absolute paradox by accepting them both, but only as limits. Instead of having to choose between true and false for every argument of importance, we can now choose almost true, mostly false, generally true, etc.

To digress a bit, with fuzzy logic we might be able to not only state that God is dead, but to prove it. Mankind invented religion out of the evolutionary imperative of fear. The same fear that protected us from physical predation by powerfully stimulating our minds and then our bodies to react to situations that threatened our species' continuation was at work in the concept of religion—some power greater than ourselves that we could paradoxically fear and rely on simultaneously—an intellectual fear response.

As the intellect grew and imagination and metaphor became a larger part of our mental processes, we were fearful of not just the physical threats but imagined or non-physical ones as well. To do this, we were forced to seek metaphysical counters to fear as well as the just physical ones our bodies had evolved. We had to have an anchor in absoluteness that would counter the arbitrariness and meaninglessness of daily existence. Primitive religion was born when we realized we could ascribe the seemingly capricious nature of the universe to a higher order of being—the Gods or God. It was neat. It was easy. It was (unfortunately) self-perpetuating.

Once science was sufficiently advanced for us to realize that rational thought offered another way to deal with the fear of the unknown, the conflict with the irrationality of religion began. The conflict raged for several thousand years and was the basis for mankind's embracing of philosophy. Mankind was determined to reconcile the apparent disparities of the rational and the irrational, the true and the false, and the absolute and the infinite. But "apparent" is all they turned out to be. They can be non-conflicting when they are seen as expressions of limits.

The absolutes of true and false, rational and irrational, etc. can exist on the ends of an infinitely divided scale of possibilities—and never the twain shall meet. The conflict is gone. The paradox of absolute infinity is rendered meaningless or reduced to inconsequentiality. Mankind can now get on to really understanding how things work. To do this, we must first understand how fuzzy logic works.

The cognitive scientists are making progress, but progress is slower than I would like and controversy over the details is extensive. Consequently, I will provide my own concept of fuzzy logic as utilized by the human mind, which is not such an ego driven undertaking as you might think. The understanding of fuzzy logic invites the use of the imaginative scenario because it is the way cognitive scientists have determined the brain works anyway. I will present my imaginative scenario in as condensed a form as I think I can and still convey what I need to make it clear how we access information, learn, and make value judgments. As we move through the essay I will continue to expand this information on the neural network as it relates to the subject at hand.

Fuzzy Logic in the Human Neural Network
Let's look at some basics of the brain as a starting point. Evolution has provided us with a brain that is capable at birth of beginning to collect and integrate information. This is called hard-wiring by some and is most apparent in physical capabilities like visual perception, muscle control, etc., but it is also highly visible in the speed with which babies acquire language—a truly remarkable feat. This hard-wiring might also be understood as being analogous to a computer's operating system. It doesn't do much that is visibly useful by itself, but it provides the infrastructure for useful programming and data manipulation.

Higher order life forms on the earth all exhibit some hard wiring provided by evolution. In some, this is nothing more than stimulus response, but as we move up the complexity scale we see instinct, social behavior, and rudimentary communication. Only mankind seems to have made the giant leap of flexible language, and so far, science has only been able to confirm an intellectual awareness of self as a characteristic of humanity.

So the brain functions with an evolution provided operating system controlling a neural network that works something like a computer database. Now let's take a look at how it acquires and uses data.

Most cognitive scientists agree that the human mind works by being able to construct imaginative metaphors of the subjects it is considering. That is, our brains create, recognize, and manipulate symbols and elaborate patterns rather than working in the on-off pattern of the computer. When we try to understand or perceive something, we are trying to understand its essence, its conceptual form, or its overarching characteristics rather than its details. Once the mind forms its own metaphor of perception, it can recognize similar metaphors that it encounters in the future, even though the details of that metaphor might be significantly different from the one previously encountered. What matters is that the mind immediately grasps the similarities of the conceptual form.

In its identification of similar metaphors when considering a new subject, the mind can then utilize past information by transferring characteristics or previously reached conclusions from the old metaphors to the new one under consideration. Again, it does this not in whole like a computer program's recognition of "if this, then that," but rather in pieces, as if the metaphor were a construct of multi-layered, intertwined, images, each with its own set of characteristics, truths, and conclusions, even though the entire metaphor was unique and seemingly a whole when viewed in its totality.

A good way to understand this concept of multi-dimensional metaphor is to utilize a metaphor of the concept that is hanging on the wall in my beach house. It is a picture given to me by the real estate agent when we bought the house. When you are standing across the room, the picture looks like a pen and ink drawing of a blue crab, a

"beautiful swimmer" (thank you, Mr. Warner). However, closer examination reveals that the entire image is composed of smaller images that are nautical in nature, like a ships wheel, a fishing pole, a starfish, a shell, etc. Consequently, this is a metaphoric crab rather than a picture of a crab.

Now, hold this multi-leveled image of the crab in your mind and see if you can envision the possibility of each of the crab's components themselves being made up of similar collages of images if you had the ability to zoom in close enough to see them, and in turn, each of those images was an even smaller collage, etc. For those familiar with fractal images, this is another good example.

Of course your mind doesn't just construct and store the idea as an image. That's much too simple. Your mind also constructs and stores truth values, emotions, anticipated resultants, related sensory input, and a myriad of other feelings and experiences related to each minute piece of the extended metaphor. It is this rich tapestry of information that is called on when drawing information from old metaphors to understand new ones.

To further understand the mental metaphor, let's look at the way the human mind does this from birth or from the first moments of awareness in the womb, if that is where they begin. The first metaphors are constructed on a very simple scale, with a minimum of pieces to form the whole. To make it easy to visualize, let's say that an early metaphor likely for a baby consists of only seven pieces of information that the baby draws from an experience: brightness, temperature, touch, sound, pain, smell, and emotion. When the baby is birthed, he or she would be moving from a dark to a light space, the temperature at their skin would drop twenty-five to thirty degrees, they would feel the grasp of the physicians hands on their legs, they would hear the slap across their buttocks (though they probably don't do this anymore), they would feel the pain, they would draw in a reflexive breath and smell the air of the delivery room, and they would not like it one bit. Note that just about all of these informational data are sensory in nature, because that is all the unsophisticated mind of the baby has to work with.

To continue our infant image, let's say the baby was cleaned up (a different set of information to be stored) and given to his or her mother, where it could snuggle against her warm body and smell her familiar body chemicals. If the baby was then taken from the mother, grasped by the ankles, and pulled up to put on a diaper, the baby might start to cry in anticipation of the slap across its buttocks, because this is the only thing it has to relate from its earlier metaphorical information to its new situation—pain follows a grasp and lift at the ankles. If, however, a few days go by and the infant has been re-diapered many times where the experience was pleasant of going from wet to dry, the grasping of the ankles to raise the baby's buttocks during the process might no longer engender anticipation of pain. He or she might also at this time have stored enough information to begin to make more sensitive distinctions like having the legs raised by the ankles only high enough to slide a diaper under rather than to be inverted.

This is how your brain builds metaphorical images, associates them with sensory inputs and actions-inactions, and relates them to likely future events. It just gets more complicated as the storage of metaphors rises—a lot more complicated. The human mind has on the order of 100 billion neurons and 100 trillion synaptic connections between those neurons. These neurons connected by synapses are frequently referred to as the human neural network.

While no one yet has a handle on how many neurons and synapses of the neural network are needed for metaphor building and storage, we probably have all the capacity we need for a lifetime and even if we don't, we seem to have the ability to

move unneeded information to the trash bin just like we do on our computers. In fact, research has shown that synaptic connections tend to attenuate when they are not utilized frequently. Surely you've noticed.

I will digress just a moment here to make sure that you have a good mental image of the richness of the mind's metaphors. I have used long lists in the descriptions above to try to illustrate the variety of data that is part of the mind's metaphors and have referred to them by as many different phrases as I can conjure up. I'll try one more time to convey the likely richness of the stored metaphor. Envision, if you will, a ballet where speech and music is employed as it is in an American musical; the lead role being played by a man that dances like Nureyev, acts like Olivier, and sings like Domingo; to music written jointly by Puccini, Prokofiev, and Glass; spouting dialogue written jointly by Shakespeare, Joyce, and Dickenson; and on sets designed by Michelangelo, Fuller, and Brancusi that are painted by Vermeer, Picasso, and Pollock working side-by-side.

This is as close as I can get, and the reader should note that the example is from the arts, where complexity and diversity is the rule rather than the exception. This will enter into the essay later when I am discussing the various inputs available to the building of one's personal universe and the importance of exactly what we set out to learn.

Okay. On to how all of these metaphors built by the mind get used to make simple decisions and complex judgments. If you noted, the name I used for the brain's working structure is "neural network." It is called a network because the brain employs a multi or parallel processing method rather than the single-stream, logic-gate process of the simple computer. For a computer to employ parallel processing, the memory must be artificially segregated into dedicated blocks, which are essentially separate computers, but parallel processing appears to be the *only* way the brain works.

Consider the following diagram. This is a flow chart of a decision making process that utilizes the "if" "then" "else" limitations of binary logic employed by ordinary
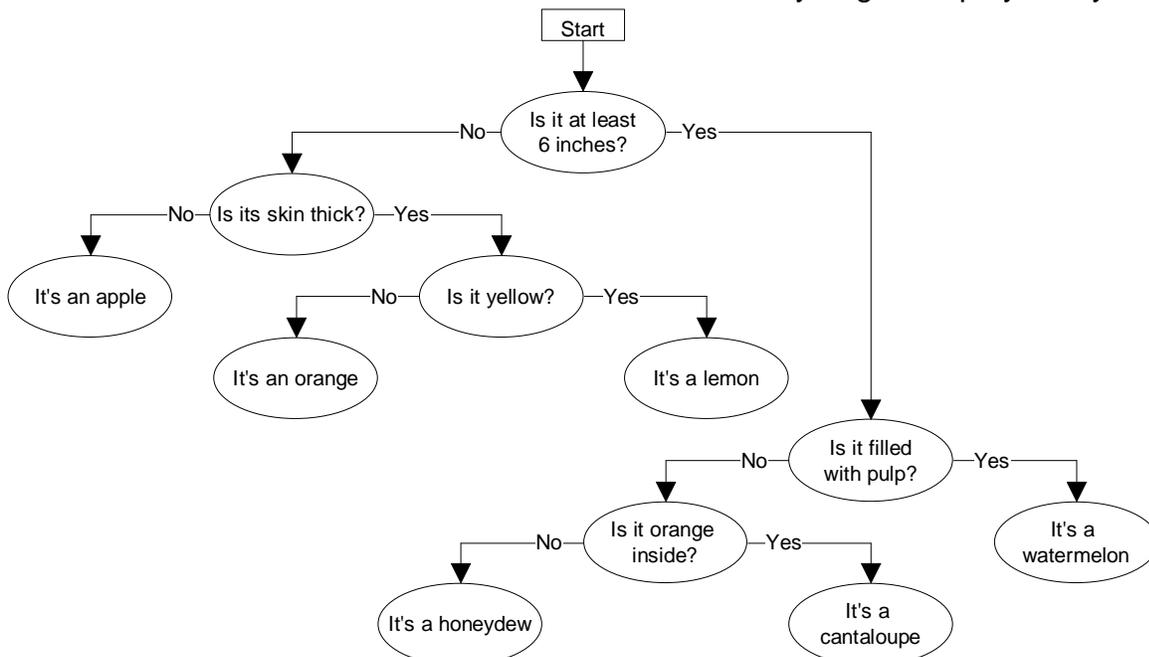
computers. That is, "if" the answer to a question is yes "then" you proceed down the path on the right, "if" the answer is no, you take the "else" path to the left. The computer is being asked to identify a cut-in-half piece of fruit on a plate from six possible

10

answers—an apple, an orange, a lemon, a cantaloupe, a watermelon, or a honeydew. It has as its sensory input a video camera that allows it to see shape, size, and color; a weighing scale on which the plate sits; a thermometer placed in the fruit; a gas spectrometer; a core sampler; and an ultrasonic density probe.

A quick perusal of the diagram would indicate that the computer could solve this problem in short order by determining the size of the fruit, its skin thickness, its colors, and its internal consistency. However, this is true only because the computer has been told which questions to ask and in what order. If the computer had to randomly check all the known characteristics of the six fruits that could be determined by the sensors available to it and we generated a diagram to show all the possibilities, the diagram would be orders of magnitude larger. On the other hand, had the first question been, "is it red (or green) inside," the answer would have been known in a single step.

Taking another look at the six fruits, let's say that the sensory equipment produced a thousand distinguishing characteristics for each fruit. A smart program could group and then count similar characteristics in two steps. If chance provided the best possible groupings and if chance selected a question at each step that provided a "yes-no" where the answer averaged a roughly fifty-fifty split each time, the minimum number of additional steps required to get to the answer would be ten—a total of twelve steps. However, if chance gave you less even groupings, say 90-10 instead of 50-50, and chance gave you questions that only allowed paring away the 10 percent each time instead of the 90 percent, it would take about 55 steps.

All of this fruit identification talk is just to give you some idea of the laborious (albeit fast), step-by-step process that a typical computer would have to progress through to identify one fruit from a possibility of only seven. Since this isn't a treatise on computers configured for parallel processing, let's just say that parallel processing in binary mode would be much faster, simply because it divides up the tasks.

On top of the parallel processing, the brain uses fuzzy logic instead of the absolute logic available from simple binary language—on-off, true-false. With fuzzy logic, the brain doesn't need to know anything in an absolute sense: true, always, never. It is perfectly happy with shades of truth: almost always, sometimes, and "hardly ever" (thank you, Mr. Gilbert).

What your brain does is arrive at value judgments that are of sufficient validity for the question in hand—good enough for action to be taken, even if there is a small chance of the answer being incorrect. Nobody knows how many of these value judgments a person makes in a single second, but it is probably tens or hundreds of thousands just in support of the senses that are constantly, either consciously or unconsciously, sampling the environment.

Instead of needing an answer to a true-false, yes-no question in order to proceed to the next step of inquiry, your brain needs only to know *how true* or *how false*. Not only that, it asks a different type of question. Instead of finite questions, it asks relative questions that have answers best suited for the use of fuzzy logic. Instead of, "Is it at least 6 inches?," it asks "what is its size on the scale of the largest fruit with which you are familiar (probably the pumpkin or watermelon) and the smallest (let's say the blueberry)?" Your brain has stored information on the category of fruit, and accesses this information in order to answer the inquiry.

Exactly how this information is stored is still open to a lot of debate, but you can think about it most anyway you want as long as you see it as multi-layered, sensory rich, and imaginatively diverse. Most computer literate people think of data retrieval in conjunction with databases. If the image of a database that is queried by your

conscious thought is comfortable for you, just see it as one that is storing the types of metaphorical constructs we discussed previously. Personally, I have gradually weaned myself from the database concept when considering brain functions because I think it more accurate to see storage grouped as paradigms. That is, as experience provides information of any type to the brain, it is categorized, hierarchically evaluated for relevance, and woven into the tapestries of previously defined metaphors to which it might meaningfully relate. At some point, which I can't define because the dividing line is too fuzzy, I see a grouping (not physical but referential) of metaphors as a paradigm for the defining characteristics that make up single definition constructs—like fruit.

Our brains have a paradigm for fruit that we have been adding to and enriching all of our lives, from the first spoonful of pureed peaches to the first (and in my case, the last, since it made me violently ill) bite of an ugly fruit (the grocery store name). If you live in the earth's temperate zone, the largest category of fruit with which you are familiar is probably indigenous to that zone, but you probably have a paradigm for tropical fruit as well, both categories being geocentric. We have a paradigm for citrus fruit also, since it is a big contributor to our dietary fruits in America. This paradigm has strong connections to the paradigms for temperate and tropical fruits, since it is grown primarily in the geographical regions between the world's temperate and tropical zones. It is, however, large enough and important enough to have its own paradigm, and there are probably many other paradigms for fruit like those that grow on trees, those that grow on vines, those likely to be dried, those likely to turn up in your grocery store, those having a short shelf-life, etc.

So what your brain does is a top-level search through all its top level sensory and intellectual paradigms to initially categorize the objects in question as fruit, or the information is a given through the intellectual understanding of communication. The brain then queries the fruit paradigm to see what the possibilities are for the identity of the fruit in question. It surveys the information in the paradigm by comparing the information it has to work with, be it sensory or intellectual, to patterns contained in the first layer of sub-paradigms for fruit. When it does this comparison for matching patterns, it does so through thousands (millions?) of parallel routes, allowing these inquiries to happen virtually instantaneously. The answers it gets from these multiple inquiry paths aren't *it is this* or *it is not this*, they are *this is a good match* or *this is a bad match*.

Think about it this way. Remember the crab on my wall where close examination shows it to be made up of nautical theme images like a ship's wheel that in turn are made up of more nautical images, and each of these images is made up of even more images, etc. Then say the fruit paradigm has a thousand layers starting at the top with sub-paradigms all the way down through complex metaphors to rather simple metaphors. At every level of every cross-referenced paradigm and metaphor, the vast parallel inquiry has resulted in a matching of patterns that has yielded a match value (think percentage if you want). These values are then summed (or averaged or . . . , the exact mechanism is still unclear) up to get an overall value. If that value is good enough for use in the action that will result from the inquiry, it is accepted. If not, the brain will iteratively continue its efforts to arrive at a useable conclusion by following less promising paradigm and metaphor connections or until it feels it has exhausted even the less promising avenues of inquiry—as is commensurate with the importance of the anticipated use of the answer. That is, if your life depended on it, your brain would probably continue following all the possible connections, no matter how tenuous they might be.

By now you are just waiting for me to start talking about flour and nuts so you can label me a fruitcake and stop reading this very difficult essay. But stay with me, if you can, because we just learned some very important things about how your mind works. The intent of this essay is to now relate these to how you learn, what you should learn, and how this all relates to realizing your potential as a unique intellectual entity. That's right, even you.

Examining Your Personal Universe

You now have a pretty good idea of how your mind works during the process of acquiring information from the world around you and how it is able to retrieve this information when needed for the intellectual process. What we haven't discussed in any depth is: what good is all this information that makes up your personal universe?

First of all, don't forget that your personal universe defines the limits of *You*. It defines your physical limits (those you are in control of), your intellectual limits, and your emotional limits. If your personal universe is small, your potential to interact with, derive pleasure from, and contribute to the world around you is small. If your personal universe is large, your potential to do these things is large.

Second, don't forget that much of the input defining the scope of your personal universe is beyond your control. It is what it is—period. To wish it were different or to fantasize its being different slides us into metaphysics. We need to clearly identify input we cannot control so we can either filter it out or avoid wasting energy on it. Our focus should be on what we *can* control so we can open ourselves to a maximum flow of meaningful information. After all, the payoff is a big one—increasing the complex pleasures of our lives.

With these two reminders, you are ready for the next step on the eight-fold path—whoops—the next step on the path to self-realization. But how do I know what information is meaningful? How do I find direction for my life without metaphysics? You have to make some decisions.

You have to look deeply into the information that is your personal universe and decide what is most important to you, what you value the most. The concept sounds simple, but doing it is decidedly not. Your first decision is whether you want to determine your own hierarchy of what is most valuable to you or whether you want to accept someone else's determination of what is best for you. There is an almost endless queue of those that would have you take their word for what is best for you. Most of the people in this queue are part of what I call the Triumvirate of Acceptability—social acceptability, political acceptability, and religious acceptability.

If you are willing to accept the values of others simply on the basis that they claim theirs are right and yours (and most others) are wrong, stop reading this essay, because everything else I have to say depends on you making value judgments for yourself that are based on the information comprising your personal universe. You might well find yourself in

13
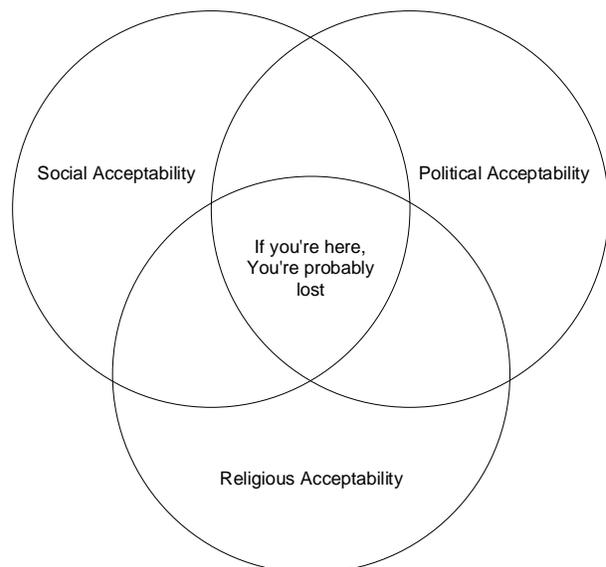
harmony with one or more of those in the queue, but to do so would be strictly by chance.

What we are trying to achieve is a determination of personal values that are rationally or intellectually acceptable, and while there is no necessary conflict with those of the Triumvirate, there frequently is. But there is a reason for this conflict. The Triumvirate is composed solely of organizational structures that are both inertia driven and egocentric—they resist change and are consumed in self-perpetuating their own power structure. They are primarily looking after their own interests, your interest is coincidental—at best.

You need to look after your own self-interests, but you do need to do it without getting too cross-threaded with the interests of the Triumvirate. Why? Because no one else is likely to look after your interests and because the Triumvirate is an existential reality that you cannot ignore. That is, if you want to live in and benefit from society, at least your behavior (the outward you) must be societally acceptable. The inner you can be anything you want.

(A short digression: I used the word "societally" in the preceding paragraph because I wanted a single word that encompassed the "political," "social," and "religious" triumvirate that dominates our lives. The dictionary tells me there is no such word as of its publication date, but there is now due to my need and employment of poetic license.)

A review of the importance of living in a society is appropriate here, but with your new grasp of the personal universe, it can be kept pleasantly brief. To isolate yourself from the social construct would be to shut down a good portion of all your personal universe growth inputs—physical, intellectual, and emotional. The logic is simple. Since growth is available, it is an integral part of reaching your potential. Striving to reach your potential is self-realization. Consequently, we must eliminate those possibilities in life that would limit the growth of our personal universe. It would be easier without rules and other people to deal with, but becoming a hermit just won't get you there.

In fact, you must embrace the richness and diversity of mankind's social constructs to have the greatest potential for expansion of your personal universe, and you must endure ". . . the slings and arrows of outrageous fortune . . ." that living in that embrace brings you (thank you once again, Will).

The Importance of Your Personal Universe

There is but a single imperative for all life—survival. It dominates our physical, emotional, and intellectual self, but it is only a beginning. It is the obvious lower limit of selfhood to which no upper limits can be defined. As such, it is a microcosmic parallel of the universe itself. But can this hard, cold reality be the sole Purpose (my finger didn't slip on the shift key, but I'm not going to slither off into metaphysics) of life in the universe?

The answer is yes and sort of yes (remember, we have foregone binary answers). However, the answer doesn't really matter, because the question makes an unanswerable and unnecessary query. It doesn't matter what the purpose of life in the universe is; it only matters that it exists and that from its existence comes eventual sentience, without which there would be no essay and no readers like you. And to round us back into the inevitable loop of things metaphysical, there would be no one questioning the purpose of life.

Survival of the individual, whether in the simplest of concatenations-replications or in the most complex of sentient forms, must first be realized before there is any possibility for a survival of type. If the individual can survive and produce *one* of its type before it dies, then there is a chance for survival of its type of life. If the individual can produce *more* than one of its type, there is a chance for survival of a group. The larger the group becomes, the greater the chance for survival of the type (read "species"; thank you Mr. Darwin). As differentiation is introduced by variations of the nurturing environment (change is inevitable in the universe until and if it reaches a complete state of entropy), reproduction is not always exact, even in asexual forms of reproduction. Consequently, those life form individuals not well suited to environmental change or challenge have a smaller probability of survival than those that are better suited. We are left with survival of the fittest (thank you Mr. Spenser).

So much for simple survival (yes, it isn't quite that simple, but . . .) except for the niggling matter of the increased chance of survival available to multiple individuals that is not possible for the single individual—that is, the societal grouping. Non-sentient social groupings allow the individuals in that group to better accommodate environmental change and to improve the efficiency of acquiring and maintaining survival necessities, like ants and wolf packs.

When sentience enters the picture, survival potential takes an order of magnitude leap. The sentient societal grouping brings a growing ability to exercise actual control over the environment rather than just tolerance of the environment. Thus, "the fittest" are no longer those life form individuals and groupings that have the best physical or even social characteristics for survival. We must now look to intellectual capability in defining "the fittest," which expands the potential for personal and species survival to match the infinity of the universe itself.

The phenomenon of biological aging might well be understood and controlled in the near future, making it possible for one to live forever barring accidental death or terminal ennui. The survival of species might be moved toward the limits of infinity by a human diaspora to the stars, which would assure survival even from planet-wide disasters, like asteroid strikes, or system-wide disasters, like changes in the solar constant.

Mankind's only hope of meeting the imperative of life—survival—is therefore tied inexorably to expansion of the intellect. That expansion must start on an individual basis as it has throughout history, but individual effort isn't enough for the complexities of today's science and technology. There must be a collective effort by many specialized individuals in all areas of science and technology (particularly science), and that is only possible with support by the social construct.

Organized religions have divergent interests from science as has been previously noted. This leaves only the governmental structure that is charged with the general well being of the citizenry to foster science. None of the other institutions of mankind have the longevity or resources to be effective.

We already understand the simple sciences, and to take on the complicated ones takes a long-term dedication of people, natural resources, and finances. Commerce driven science and technology has no stomach for long-term projects without fairly immediate and positive financial results. In fact, commerce would do little or no science or basic technology if it could get away with it, focusing all its efforts instead on product technology. In the United States, the government has been fostering science since the earliest days of its history, depending primarily on expenditures from the national treasury to finance science and basic technology needed for defense (thank you for

much more than the cotton gin, Mr. Whitney). This basic research has then been treated as a stepping stone for commercial interests.

So here we are again at a fundamental feedback on our road to self-realization. The scope and content of our personal universes are limited by science and technology which is in turn limited by our society's selection of research projects and the amount of funding provided. Consequently, we must get and remain engaged in our society to have a positive impact on the limitations of our personal universe and the route we take to self-realization.
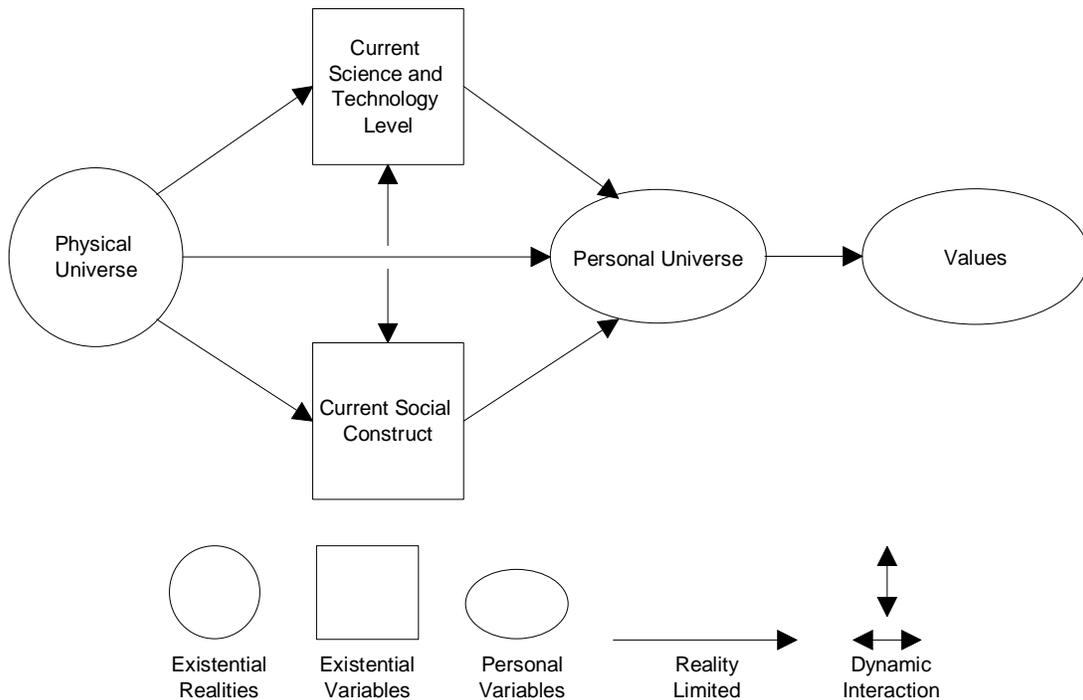
Your Personal Universe and Personal Values

Within the limits set by science and technology and the social construct, you have consciously or unconsciously created your personal universe. This is everything you know about the world in which you live, and it is uniquely yours. In fact, it *is* you.

You cannot like or dislike, believe or disbelieve, desire or eschew, utilize or disregard, etc. those things of which you have no knowledge. You must first know them as possibilities. A few hundred years ago an individual's knowledge of possibilities came primarily from first hand experience and interactions with other individuals of the locality in which they lived. The only other significant intellectual input to their knowledge of the world and its possibilities was from books.

Today we have possibilities input from a spectrum of media sources that bombard the eyes and ears virtually every minute of every day. Fast and easy transportation makes first-hand experience and personal interactions possible with virtually any social group, anywhere.

The size of the personal universe of the average human being on the planet earth has grown by an order of magnitude during the last hundred years. With all of the possible choices stored in our brain, no wonder so many are confused about what to believe, how to act, and who to be.

During this growth explosion of our personal universes, the education system, at least in the United States, has failed to provide the tools needed to bring order to the

mass of input. This has not been a failure of the education professionals, but rather a failure of the social construct. It has been society's failure to provide children with the stability and discipline necessary for education, and to make matters worse, it has imposed that responsibility on the education system. It has been society's failure to maintain the balance between teaching children how *to do* and teaching them how *to think* by insisting that more educational resources be devoted to the *practical* than to the *intellectual*. It has been society's slide toward the easy road of making schools more indoctrinational than educational. It has been society's shortsightedness in providing a proportionally, ever-smaller slice of the national budget and its concomitant reduction in the availability of higher education just while the need for it is growing.

Society's failure to provide its new participants with the tools for rational decision making has had profound effects on the character of our society. The impact of the individual is shrinking and the impact of the special interest group is growing, and the reason for this is apparent: most people do not think about much of anything. They are simply not up to the job.

It's not that they can't think—everybody has the potential—it's that they don't think. Why? It's too hard; they have no skills for doing it, and they see no value in doing it.

And here we are at the nub of the problem: values. How do values fit into the imperative of survival? What difference does it make what values I have? Why would I want to have values that are different from those of the society in which I live? Let's take a look at these three questions.

Survival starts with the individual out of necessity but only takes on significance through survival of the group and ultimately the specie. Values start with an individual and then get adopted by the group, ultimately becoming institutionalized by the social construct. This takes care of the first question.

The next two questions really have the same root answer. The pace of change in our lives today is staggering compared to what it was in the days of our grandparents. That change is driven by a parallel growth in our knowledge of the universe and how it works. If we are aware as individuals of this growth in knowledge, our personal universes have grown in scope and complexity commensurately. To put it simply, we now have better information.

Why would we not want to have our values based on the best information available? When the question is phrased this way, most people would answer that they could think of no reason not to use the best information available. Unfortunately, few do.

The reason they do not is as inescapable as gravity: values become institutionalized. And when anything is institutionalized it becomes resistant to change, no matter what the impetus for that change may be. Some resistance is good in that it keeps individuals as well as society from hasty and ill-considered change, like the provisions for change in the U.S. Constitution, but when needed change lags too far behind newly acquired knowledge or the changing needs of the society, conflict and polarization are inevitable.

When the pace of change is slow, a moderate institutionalization of values is tolerable as history shows us. But when the pace of change is rapid, as in the Western culture's transition from the Dark Ages to the Enlightenment (rapid for then, although not much by today's standards), the major institutions of government and religion become the primary impediments to progress. In today's world of rapid change, mankind cannot afford the comfort of institutionalized values. It will lead ultimately to chaos and the breakdown of civil society.

17

There are enough different kinds of values discussed by Western philosophers over the years that had I started by trying to define them, the essay at this point wouldn't have finished with the definitions. However, from a personal point of view, there are only two kinds of values, yours and someone else's. By *yours* I mean those values that have been derived by you through a rational analysis of the information contained in your personal universe. By *others* I mean values espoused by your friend Joe, values espoused by your government, values espoused by some philosopher, values espoused by your religious leaders, or the values espoused by any other person or source that provides guidance or dictates to which you might heed.

Even though these sources might be well meaning, their hearts pure, and their efforts to influence you mandated by their God, you don't need them. You don't need them because their values can't be your values. They can be similar, but not the same. Values must first serve the individual who is ultimately driven by survival. His or her survival is enhanced by participating in the group, so his or her values must be compatible with, though not necessarily identical to, those of the society in which they live. But life deals everyone a different hand and gives you no choice but to play the hand you are dealt. To play it well, you must make your own value judgments—judgments that suit the unique you.

To avoid getting caught-up in the semantic questions of ethics and morals, like what the differences or similarities are between the two (if any), how they are derived, and how they are properly applied, I have chosen not to use either word in this essay. Instead, I have used the word "values" to encompass all evaluations (including the fuzzy ones between the absolutes) of good and bad, right and wrong, desirable and undesirable, acceptable and unacceptable, etc. As we have seen, these values come from two sources: those you make for yourself through the process of rational thought and those that you receive from a source you accept as authoritative.

Until roughly the 1930's, most people's social sense of right and wrong came from childhood and early adult conditioning or indoctrination into social norms and standards. This came primarily through communications with family, friends, school (teachers and books), and church. Now we must expand the input sources to include: your favorite television show, your street gang, your favorite rapper, your political action committee, etc. This is because science has provided a greater understanding of how people think and form values, technology has provided better methods of communication, and many people in positions of power (due to social stratifications or institutionalization) are willing to use these new insights and methods of communication and influence to impose their values on you.

While some person or group might be able to provide you with a value set that is acceptably close to one that you would determine from your own personal universe, you will never know unless you take a step back after reaching adulthood and re-examine your life and values. The goal of such a re-examination would be the identification of all the conditioning you have received from all its possible sources and how that conditioning has impacted your instinctive feeling for right and wrong. Knowing this, you can then conduct a rational examination of all the information contained in your personal universe to consciously re-condition yourself based on your own determination of the values uniquely suited to you. To do this requires that you develop as complete an understanding of your own personality as possible—your deepest desires and fears—the real motivations of your life.

This essay has no intent to tell you what you should value or in what hierarchical structure your values should be placed. It cannot. Only you can do that. The goal of

this essay is to provide some understanding of how to go about deriving those values in the best possible manner, and the best possible manner is easily stated as: (1) make your own value judgments based on a rational examination of the best information available to you; (2) make new value judgments whenever the information on which you made previous judgments changes.

That's it! A simple enough concept and directive for most anyone to understand. The difficult part is twofold. First, you must make your rational analysis free of the direct influence of others; that is, if you use value inputs from others, it should only be after it has been thoroughly examined, scrubbed, and buffed to a high enough sheen to allow it a place in your personal value set. This takes serious concentration and a willingness to consciously examine every tentative decision for undue outside influence before making it a part of your value set.

Second, you must not allow yourself to fall into the slothful groove of complacency. It is all to easy to "institutionalize" your own values to avoid the anguish sometimes experienced in re-examining them in the harsh light of changing reality.

Deriving Personal Values

So what steps must you take in determining your personal values? You must start by questioning everything you have been conditioned and taught to believe about what is good or bad, what is important or unimportant, what is beneficial or detrimental, what is right or wrong, and on and on through the very long list of every value judgment you have previously embraced in life. And don't forget that you didn't even know fuzzy values were acceptable when you absorbed your current value set.

This is not an easy task. When you start this process you will not be equipped with the knowledge to do it very well. You will not be able to determine if your currently held value is a result of conditioning or precisely when, why, or how it occurred. And this is essential information if you are going to break the conditioning.

The one sure method for determining that a value you have is a result of conditioning rather than of rational thought is to ask yourself "why do I believe this?" every time you catch yourself making a value judgment. If you have no rationally derived answer or you find yourself falling back to "because it seems like the right thing to do," chances are high that the value comes from familial, societal, or religious conditioning. Every time you find one of these conditioned values lurking in your value set, make a note to re-examine your position through rational analysis using the facts in your personal universe.

Not only is this a daunting intellectual task, it is daunting emotionally as well. You will find some previously unexamined beliefs that feel so right you are reluctant to give them up, even when rational examination has shown them to be ridiculous. You will analyze some values that have been working components of your entire life and feel enormous guilt that you have been so callous for so long. You will discover new values that had never occurred to you before to even consider them to be values, and be washed in remorse at your stupidity. But if you were brought up in a good familial and social environment, most of your absorbed values will remain essentially intact. However, if you did not have the privilege of a good familial and social environment, your haphazardly absorbed values might get a major overhaul.

More importantly, a growing personal value set gives you the means to significantly improve the quality of your life by making consciously rational decisions as to how you conduct it, and you can make these decisions with confidence. The impact of this confidence on your emotional health is immediate because you no longer carry the

staggering weight of guilt your social conditioning heaps upon you when you just can't bring yourself to accept what most of those around you are espousing. If you don't like artistic minimalism: so what? If you found the movie "Pulp Fiction" dull and meaningless rather than entertaining and insightful: so what? If you find religious fundamentalism dangerously irrational: so what?
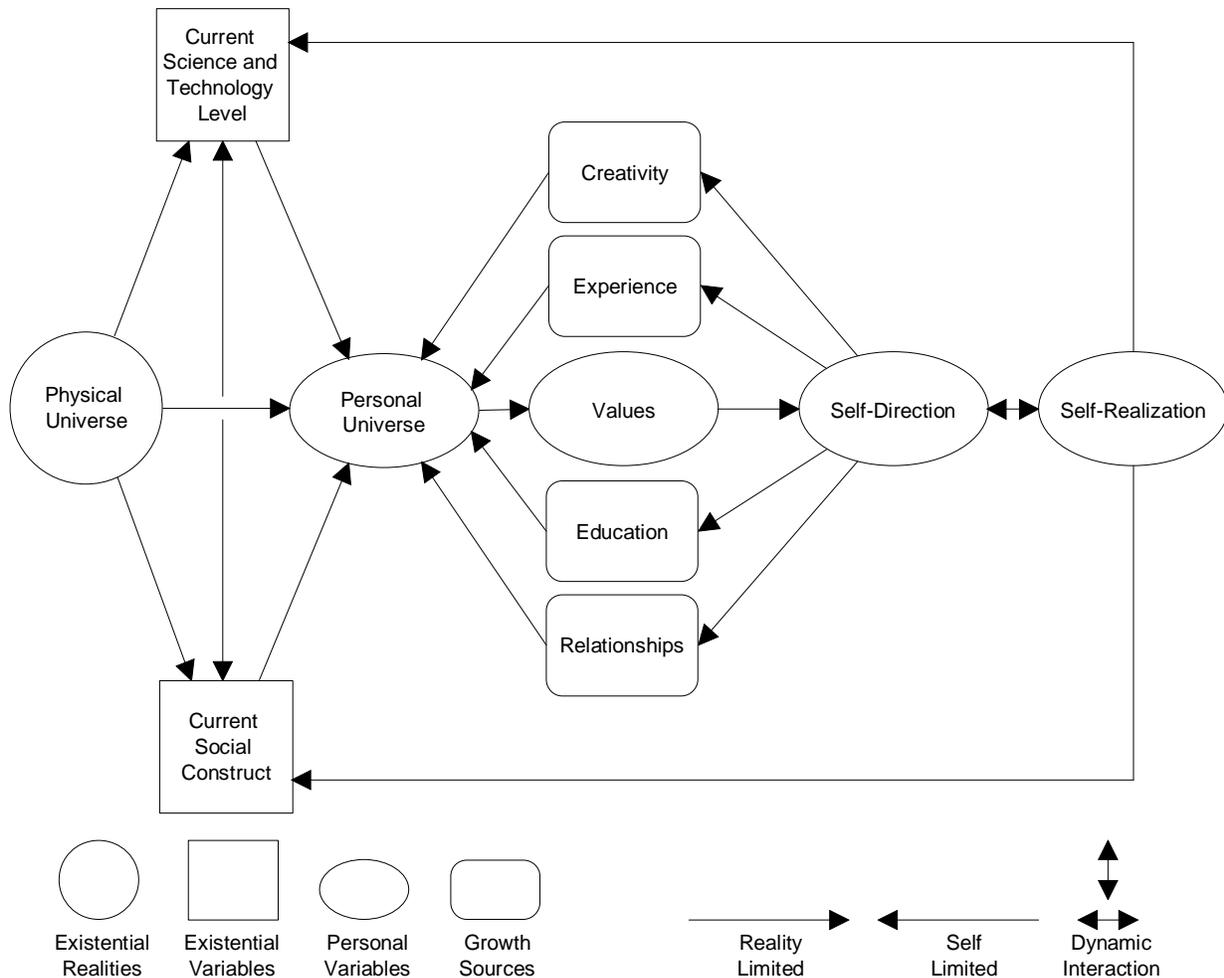
Personal Values Allow Self-direction

So, out of each person's personal universe can come a set of personal values, if the person is willing to put in a lot of both intellectual and emotional hard work. Should you decide to embark on this journey, you will take the first conscious step toward self-realization.

That first step is taking charge of your life, which I have called self-direction. In philosophy, psychology, and sociology, this is frequently called inner-directed as opposed to outer-directed. What it means is that you can draw on the values you have now determined through your own rational analysis to be most important to you and direct the future course of your life to be in step with those values. You can pick and choose your way through the plethora of personal philosophies, personal relationships, life-styles, societal interactions, and physical, emotional, and intellectual pursuits that our globally connected world offers. And you can do this entirely with the rational processes available to you and the information available in your personal universe. You need not rely on any outside authority source to tell you what to do, or why or how to do it.

This is not some funky justification for just doing what you want. In general, the rules of the society in which you live are good ones. Sometimes those rules have trouble keeping up with the pace of societal change, but that's not all bad either. Since you choose to live in the society for the benefits it offers, chances are that the direction you choose for your life will be within the excepted boundaries of your society, though in some areas you might be seen as a bit eccentric. What will be uniquely you is the combination of all the thousands of value and direction decisions you will ultimately make.

Most importantly, when you are firmly in control of your life's direction, you can direct it in ways that contribute to self-realization—and enjoy life to the fullest in the process. Why such enjoyment? Because you are doing, as much as possible, what you want to do. The only things you have to do that you might not want to do are those things required to maintain your equilibrium with society, and even here, you could always opt-out rather than continue to accrue the benefits of society—and that decision is yours to make!

Your newly self-directed life is now able to deposit into the vault of self-realization. Of course, the first time you loop through the value and self-direction process you will only get a first level result; that is, you will only achieve a level of self-realization that comes from the previously undirected inputs life has made to your personal universe. With self-defined values and a self-directed life, you have the tools that will allow you to efficiently expand your personal universe by focusing on acquiring knowledge you have determined to be valuable. These same tools and the self-directed expansion of your personal universe will allow you to refine your understanding of where your *self* fits into the schema of the universe, and develop a more practical understanding of the day-to-day tribulations of life.

Existential Realities	Existential Variables	Personal Variables	Growth Sources

Reality Limited   Self Limited   Dynamic Interaction

The Personal Universe Expansion Process

Now we can get on to the real message of this essay—how to expand the size and quality of your personal universe and why it's important. We will quickly dispense with the "why"; simply put, this expansion process allows you to reach your maximum potential as a human being while simultaneously gaining the maximum pleasure in doing so. The "how" takes up the rest of the essay.

Once you have completed the rational examination of your deepest desires and fears and reshaped this information into a set of values that define who you think you are, you have taken a giant step toward self-realization. What remains is to use this new knowledge of your self to construct a purposeful direction and meaning for your life. And you can do this in spite of the apparent meaninglessness of an infinite universe. And you can do this without resorting to an irrational belief in things metaphysical. And you can do this all by yourself.

There are four primary elements of growth available to everyone for the expansion of their personal universe. While there are numerous overlaps of these elements, I will try to treat them separately and explain the overlaps when necessary. They are: experience, relationships, education, and creativity. Now that we understand how the brain works and what we think is important, it is possible to address each of these elements in a manner that is much more meaningful than ever before in our lives.

When we first became conscious beings our primary data inputs consisted of direct experience of the physical world. Our hard-wired operating system then allowed us to

gradually build a more intellectual understanding of the world around us as we gained proficiency in language. We knew existence as nouns. We knew action and state of being as verbs. We fine tuned these understandings with adjectives and adverbs. We found ways to link these basic concepts into a limitless complexity of syntax. We had the beginnings of intellectual rationality.

After the first couple of years, all the basics of language and intellect are in place. All we manage to do through the rest of our lives is to build on and refine language and intellect. But most people do this haphazardly or in direct response to physical or social necessity. Our goal is to do it consciously and with purpose, so let's start by exploring the possibilities of experience as data input for expansion of our personal universes.

Experience in General

Experience can be broken down into three types: physical, intellectual, and emotional. Physical experience is just what it sounds like, your experience of the world the way it exists. Intellectual experience comes through the rational analysis of information and could theoretically occur without a corresponding emotional trigger, but not in most of us. Emotional experience is a bit more complicated and comes in two forms: emotions hard-wired into our brains by evolution to enhance survival and emotions that result from intellectual activity.

All three types are important contributors to your personal universe. Interestingly, each type of experience can in turn trigger a secondary experience of the other two: the joy at your team's victory stimulates a calculation of how your chances to win the championship are improved; the shock of your mother's death brings on a case of shingles and contemplation of your own eventual death; the realization that your lifestyle will seriously degrade with advancing age brings a strengthened determination to exercise daily. While we can talk about them separately, the three types are intimately linked, so we will talk about them that way.

Personal physical experience can be categorized fuzzily and endlessly as being between the extremes of those over which we have no control to those over which we have absolute control. A good example of "no control" is the physical manifestation of the macro universe for which science and technology has not yet provided us with any manipulative ability, like the weather. A good example of "absolute control" is our intellectual experience of ideas, which is unique to ourselves. That leaves most of our experiences in the middle where we have some control, that is, somewhere between a lot and very little.

Even though there are experiences over which we have no control as to their manifestation, we still have control over *how* we experience them—physically, emotionally, and intellectually. So we can enhance *all* our experiences as to personal universe contribution even when we cannot fully control the experience itself. Let's look at some examples.

Experience That Just Happens

We will examine a summer rain shower. You can sit in your house and observe a summer rain shower through a window. If you are in an air-conditioned house with all the windows closed, your physical perception is pretty much limited to the visual experience of the gray sky, scudding clouds, leaves dancing in the striking rain, rushes of water down the driveway, etc. You might be able to hear the rain in the gutters, blowing against the windows, and drumming on the skylights, while the gray is relieved occasionally by a flash of lightning and a rumble of thunder vibrates through the roof

and walls. Emotionally, this physical experience of the rain can probably do little more than set your mood, unless one of the lightning strikes is close enough to add an element of startlement or fear.

On the other hand, if you are caught outside in the shower or choose to go out into it, your experience is more intimate. You have all of the experiential elements you had while inside watching, but you now have the feel of the rain hitting your skin or clothing, the smell of damp earth and maybe ozone coming in with each breath, the taste of almost no-taste from raindrops on your tongue, and the feel of the air temperature drop over your whole body. This emotional experience of the rain would probably be very different from what you would feel as a mere observer. Inside looking out, you would probably feel somber and contemplative. Outside in direct contact you would probably feel vivacious and inquisitive—or whatever, but most likely the emotional component of the experience would be different.

So even those physical experiences where we have no control over the event itself, we usually have some control over how we participate. Of course, there are always some experiences where we can't even control our participation, like accidents and other unanticipated events. But even here we have the ability to control the way we intellectualize the experience. Had you been walking in the rain shower and been struck by a drunk driver that lost control of his car, during your recovery you could feel anger for the driver, doubt that a just God would let such a thing happen to you, compassion for the driver's heart-felt remorse, analytical intrigue over the probabilities of such an event, preoccupation with the possibility of relating the event in a short story or poem, or any of a long list of potential emotional and intellectual responses.

Experience We Choose

While we can do our best to wring the most out of experiences we cannot control, being human allows us to be very much in control of our immediate environment and make most of our experiences ones of choice. The nature of our choices defines our personalities and limits or facilitates our journey toward self-realization. Remember that experience comes in the full range from controllable to uncontrollable. We've looked at the uncontrollable, now we will explore the controllable, and later we will examine those very important experiences between the two extremes.

When making choices as to experiences we will embrace, we must first decide on the type of experience we wish to have, at least as the primary trigger for the other two types. While I wish to steer clear of the psychological complexities of why people choose certain types of activities more frequently than others, the fact that they do is important because the three types of experience each come with two modes for tuning the level of experience but with each type having a different tuning range. And to make it a little more difficult, experiences can be either short- or long-term.

The two modes of experience are the tunable levels of complexity and commitment. When we decide to do something we are almost always presented with the choice of how deeply we will become involved. Let's take the example of bicycle riding that we might have decided to participate in for its contribution to physical well being without the pounding of joints that the more popular jogging would embrace. We can just go buy a bike at the local discount store and ride it around the neighborhood a couple of times a week. This would be a chosen physical experience that we tuned to be simple and uncommitted.

We could also go to the local bicycle shop and purchase an expensive touring bike based on our extensive research into the features desirable for the terrain in which we

planned to use it, then commit to joining a cycling club with regular road trips and competitions, then equip the garage with all the tools necessary for maintenance and custom construction, etc. This would be tuning up our experience in levels of both complexity and commitment, and the physical experience would certainly have triggered the emotional and intellectual types of secondary experiences.

Why would we want to do this? Simply because we would get more out of it. Of course we would have to put a whole lot more into it, so choosing the levels of our modes of experience becomes a value judgment well beyond the choice of riding a bike for exercise.

Let's take another example. You decide you want to go experience the rides at the amusement park. You pick a day, drive to the park, get a ticket, and go in. You stand in line and ride all those guaranteed to be breathtakingly stunning. You have a hot dog and leave. Your choice of physical experience this time is predestined by its very nature to exclude any triggering of intellectual stimulation, and the only tuning available to you is whether or not to skip some rides, which would change both the complexity of your afternoon's experience and your commitment to it. You have chosen to spend your afternoon in pursuit of a physical experience that is essentially limited to a narrow range of emotional response to specific physical effect.

Consequently, the types of physical experiences you choose might affect the contribution experience can make to your personal universe by not offering the breadth of tuning range available with other choices. But even for those experiences that offer a wide range of tuning potential, you must take advantage of that potential through commitment and complexity for them to make a meaningful personal universe contribution.

Let's shift the focus to emotional experiences.   Here again we can just be in a pure response mode to things that happen in our lives, or we can at least choose some of our emotional experiences, and the same complexity and commitment modes of experience are available to us.

The unexpected death of someone you know is a fairly universal experience, and your emotional response to that death is primarily determined by your relationship with them. Was it simple or complex? Was it committed or uncommitted? If it was both complex and committed, your emotional response would be deeply felt, you would probably make the physical commitment to visit the family and go to the funeral, and you would spend some contemplative time with memories of the deceased. If the deceased were a simple acquaintance to which you had no commitment, your emotional, physical, and intellectual responses would be minimal.

On the other hand, you might feel a strong attraction to a college professor that teaches art and spends his or her spare time hiking in wilderness areas. You meet this person at a party in the big city and go to dinner, a few movies, a picnic in the park, etc., and you both enjoy each others company, the sex, and skewering political cartoons. While this relationship might start as a mutually physical one, there are signs that the professor would consider a deeper one if you wanted it. You must then decide whether you want to change this simple and uncommitted relationship to a complex and committed one. Since you have a lifetime of fear relative to insects, snakes, and bears, and since you wouldn't know an impressionist from an expressionist, could you stretch your horizons to make this work?

Your commitment to such an emotional relationship would trigger complex physical and intellectual experiences that would make big new contributions to your personal universe. Or you could keep it simple and uncommitted, avoid those summer break

trips to the mountains, and smile and nod your head a lot when the party conversation touches on art. Not much new here for your personal universe, but it would be your choice to make.

A good emotional experience can stimulate intellectual acuity. A bad emotional experience can be intellectually endured with the knowledge that *shit happens* (thank you, I believe, that great poet of the bumper sticker, Anonymous).

Secondhand Experience

So far, we have only talked directly about first-hand experience. Let's look at second-hand experience and what it might offer in the way of personal universe expansion potential.

First of all, what is it? It is an experience of the existential world that didn't happen to you but did happen to someone else. While first-hand experience of our own sensorimotor functions is the most reliable source of information for our personal universes, it is very limited in its availability compared to information that might be available via second-hand experience. We just can't do and experience everything for ourselves—life's too short.

In ancient times (a hundred years ago or so), people had two possible sources for second-hand experiences: other people and books. Today we have all sorts of media competing to present second-hand experience. Unfortunately, because it is a competition, the spin with which the experience is delivered has grown to be the greater part of the message (thank you, Mr. McLuhan).

Not that even the oldest or most simplistic of journals and histories are without some level of spin, as they all reflect self-aggrandizement, dedication to personal beliefs, or the limitations of their personal universes (that includes you, Mr. Boswell); although most had no reason to purposefully deceive the recipient. The wielders of today's media have their very existence at stake in adding as much spin as possible to enhance its appeal to its audience and its sponsors—notwithstanding the facts.

But even today's hype-filled media must deliver it's non-fictional messages based on a structure of facts that would be useful additions to our personal universe's store of knowledge about how things work and relate to each other. It's figuring out what they are and their level of reliability that is difficult. Fortunately, because of how our neural networks make decisions, we do not need absolute truth for information to be usable. We can also use less-reliable information for making many less-critical decisions (which happen to be the great majority of our routine decisions) and for the creative process discussed later.

So the media bombardment can be a positive input in its delivery of the news, history, travelogue, and documentary if we have the tools to filter most of the spin out and get to the facts. The ability to do this is like most of the processes we have been describing in this essay—iterative and slow. As our personal universe grows and our ability to access it efficiently improves, we are able to better filter the many types of clutter that usually come with media information.

I have just a few words about the fictional information presented by the media, because it is explored in more depth when discussing creativity. This is by far the largest form of media output, whether measured in air-time or pages, and it has a significant impact on the social construct while being, simultaneously, a reflection of that social construct (a turbulent and important do-loop but not explored here). A way to look at fiction is that it is third-, fourth-, or even tertiary-hand experience. It still might

provide usable, experiential information, but cutting through the clutter to get to reliable facts is difficult. It is far more useful in other ways.

I have spent more time in the essay on the growth element of experience because it is the first one I chose to address, not because it is necessarily the most important. In the discourse, I have had to present concepts and explanations that I will also use in discussing the next three elements, which should make them shorter and, hopefully, easier to understand.

The Education Process

While education might seem to be a simple idea, the many forms it can take belie that concept. Education can be broken down into formal (institutional), informal (self-acquired), and consequential (street wisdom). First of all let's make a distinction between formal and informal education and the inevitable absorption of information which the consequences of living provides.

The big difference is one of intent. We can't help gathering and storing information continuously, though sometimes it might be helpful to turn this function off. The problem with this information is that it goes into the personal universe with virtually no analysis and resultant cataloging for retrieval, making it only peripherally usable. On the other hand, when we consciously set out to gather information we are usually in the mode of analysis and integration. When this analyzed and integrated information goes into our personal universe it does so in a highly usable format.

Remember that our neural network works at its highest level when employing stored metaphors and paradigms. While it can retrieve bare facts in a database-like function, this tends to be a short-term function and the information's accessibility seems to fade rather quickly when not recalled on a regular basis. Information we have taken the time to analyze and really know seems to stick around a lot longer.

So what we have is two kinds of information absorption. One kind gathers information automatically and enters it into the neural network with no conscious thought but allows retrieval only for a short period of time and with a minimal relationship to other stored information. The other kind gathers information consciously, subjects it to analysis and integration, categorizes it, and places it hierarchically into the neural network in a manner that facilitates its use. This second and most usable type of stored information we will call knowledge.

Consciously executed education comes in two flavors: formal and informal. Formal education is a function of the social construct and can be free or costly, available to all or a few, and flexible or highly structured in its delivery. Of course, the most desirable formal education is represented by the first element of each of the three listed items: free, available, and flexible. Unfortunately, the U.S. system tends to be more heavily weighted toward the second elements: costly, available to few, and highly structured.

For a country founded on the principles of choice and freedom, we exhibit a dogmatic preoccupation with institutionalizing just about everything. So institutionalized education tends to have the same major shortcoming as political, religious, social, etc. institutions. They are all slow to change, making them increasingly less relevant to today's fast and increasing pace of social and scientific change. But that's another problem we will not explore here.

The second flavor is informal education. This is education that is consciously pursued by the individual outside of the institutionalized education system. It can be as rigorous in its approach as any found in a highly structured university degree program, or it can be sporadic and opportunistic like the pursuit of information on a topic triggered

by the day's reading or news show, a painstaking search for detailed information related to a hobby, or any other conscious pursuit of knowledge by the individual using sources available to everyone.

Informal education is truly available to everyone that wants to pursue it, and if you are beyond the years where having a formal degree is no longer a priority or even an advantage, it is the fast-track to self-realization. We are already an information-based society and growing more so every day. If it hasn't been classified as off limits by some institutional authority for some arcane reason, you can probably gain access to it at your keyboard. You have the ability to pursue any line of inquiry to any depth you desire at any time that is convenient, and you can do this while not having to suffer through information that *used to be* relevant when the institution's syllabus was adopted. Now that's efficiency; why don't more people take advantage of this fact?

First of all, survival in our society doesn't require it, which undermines incentive, but it is hard to find fault with our society on this issue because it is exactly what society is supposed to do—enhance survival of the individual and specie. In the case of American society, physical survival is pretty much guaranteed even though we don't look at emotional survival and turn a blind eye to intellectual survival.

Second, our society failed to instill most people with intellectual curiosity during the formal education process. The focus of the last half-century has been shifting to provide information with practical applications to the immediate needs of society. Unfortunately, the institutional syllabus is always ten to twenty years behind social reality, so it hasn't even fulfilled this goal. This is, of course, exactly what we *didn't* need during this period, since it has displaced the teaching of knowledge or even how to think. We needed to teach students to think, which provides the recipient with the ability to adapt and continue learning in our increasingly, fast-changing society.

Third, it doesn't provide the immediate gratification with which our society is enthralled. If it doesn't feel good right now, what good is it? Why should I deny myself now for some uncertain future? This is a hard question to answer because this endemic attitude of society is self-satisfying—the future *is* uncertain when no planning is done and no provisions are made for it.

Fourth, it's hard work. We seem to have lost our grit in this land founded by pioneers willing too live or die relying on the personal resources of determination and hard work. We want everything to be easy because that's what a technological society like ours provides for physical well being. If we need more intellectual ability, why can't the scientists come up with a way to stick a wire in our brains and zap us with it? And maybe they will, but it will still not be able to integrate the information into our unique neural networks such that the information becomes knowledge.

There are probably other reasons, but these four stand out. Logic dictates, however, that the very fact that you are reading this essay means you have not been totally short-circuited by these four societal shortcomings. There is hope for you yet. It is still possible for you to seek more formal or informal education that can expand your personal universe, improve the operating efficiency of your neural network, and move you toward self-realization.

The Contribution of Relationships

My previous essay, "A Trinity for Living" discussed relationships in great depth but failed to spell out how important they were to the process of self-realization. Their importance lies in two characteristics. Having a relationship with someone, whatever its level might be, means that you know them more intimately than someone you have

never met or communicated with (thank you, Mr. Churchill, for freeing me of the tortured prepositional phrase). In some instances your knowledge of the individual might cause you to have a high regard for their informational accuracy, and in other instances it might make you have a low regard for its accuracy. Whichever category they fit into, if you decide to use information received from them, it makes them a much more reliable source for second-hand information of all types.

It would depend on the person and the nature of the information. If you are reading a book by an author you have no knowledge of other than what's on the book dust cover or in the review you read, you have little basis on which to judge the probable accuracy of potential information the book might convey. Consequently, you are forced to assign whatever information you glean from your reading to a lower level of probable accuracy than it might really deserve. You have no choice.

Casual acquaintances would offer little improvement, if any, over dust cover or book review information. Spending time in discussions with your friends, on the other hand, could be an excellent source of second-hand information because you would know their areas of expertise, the quality of their analytical abilities, and their propensity for bullshit. This means you can frequently piggy-back on their hard-earned knowledge, shortcutting your efforts and freeing more time to pursue other unknowns. You might say that your friends provide second-hand knowledge rather than just information.

Friends can add more to your personal universe than just information. They can also be an exceptional source of personal insight. As you know your friends, so do your friends know you. There is no better way to tune-up an analysis you have made or even break an analysis logjam you are experiencing than in a spirited discussion with a friend. A friend can and will look you in the eye and tell you when your logic is downright ridiculous or that you have completely missed the point (usually accompanied with a phrase like, "you ass").

Verbal discussion is a great form for more than one friend at a time, particularly if you pick them carefully to ensure perspicacity in the subject of interest. Because each individual's personal universe is so different and their neural networks so differently connected, It is frequently possible to achieve a dynamic interaction (virtually an intellectual gestalt) when analyzing a problem that would be impossible by yourself. As successive layers of a problem are peeled off by analysis, each participant will access related information in their personal universe using their own paradigms, reliability values, and shortcuts. Verbal contributions of insight to the conversation then start another loop of everyone's neural networks, more contributed insights, and so on. This is, of course, the think-tank process on a personal level, and it is highly effective.

It is not always possible to get together with your friends for dialogue or discussion, but I have personally found the telephone to be a poor substitute. There is a definite loss of energy and stimulation when overt gesticulation and unconscious body-language are removed from the intellectual stew. Expletives, frequently helpful when making a critical point, just don't have the same oomph when they aren't reverberating off the walls.

The remote communication mode I *have* found useful is the written dialogue, which was once popular among the intellectually inclined only to fall into disuse for a century after Mr. Bell produced his telephone. It has recently been revitalized by the growing availability of email. For instance, I solicited comments from a few friends on a draft of this essay (my normal practice) and received the usual, insightful set of comments that I have shamefully (without specific credit except in the Acknowledgements) utilized herein to improve my work. While this doesn't allow for the dynamic interplay that face-

to-face offers, it provides an opportunity for more careful and in-depth thought—a different set of personal universe access routes than the shortcut, intuitive, snap-judgment knowledge retrievals required in conversation. It is more an access of wisdom than of intuition, because even the back-and-forth available via email and instant messaging is slow enough to allow contemplation. And if you need even more time you can always claim unverifiable necessity that wouldn't past muster in a heated discussion.

Acquaintances are better sources than strangers, but friends are indispensable for expanding your physical, emotional, and intellectual experiences. A close friendship can lead you to explore new areas of experience by observing your friend's enthusiasm and deciding to explore the attraction for yourself. You can then proceed on your own or share the experience. Shared hobbies and intellectual interests frequently grow out of one friend's initial interest, and the emotional content of the experience is always heightened when shared with a friend.

Having pointed out that your friends can be a reliable source of usable information for your neural network and personal universe, it should be obvious that your choice of friends is paramount. While friendship can include both physical and emotional attachment, the essence of friendship is intellectual. For a person to be a friend, there must be an intellectual attraction, so your search for new friends (which should be a lifetime endeavor) will be most successful if you cultivate those acquaintances that you find intellectually stimulating. An intellectually disposed new friend can be a significant fuel source on your road-trip to self-realization.

The Essentiality of Creativity

Having lured you in with the promise that the three knowledge growth elements following Experience would be shorter and seeming to deliver when discussing the next two elements, I will now renege. I find that it is just impossible to keep the discussion on creativity short because it is so vital to self-realization.

Creativity is a purely intellectual phenomenon closely akin to intuition. It might sometimes make use of the physical world in its expression, but these physical props have nothing to do with the creative act itself. Like all the other major types of intellectual activity, creativity has its own feedback loop where the intellectual activity of creative thought expands the personal universe, which in itself enhances future creativity.

While creativity is important enough in its ability to improve the quality of your day-to-day life, it is essential to the efficient functioning of your neural network and all the pieces of the self-realization process that rely on that efficiency. Remember that the neural network stores and accesses information primarily through the use of metaphor or paradigm. Metaphors and paradigms are primarily the results of the imaginative or creative processes of the mind. The richer the metaphor or the more in-depth the paradigm the more efficiently the information is both stored and retrieved.

The binary world uses compression routines that analyze data, strip it of non-essential information, organize it with less redundancy, and encode it with a minimum of instructions for its retrieval. Metaphor and paradigm do this by their very nature, but not everyone can construct good ones. However, the good news is that you can learn to do this.

"Learn to be creative? I thought that was something you were born with or you weren't." If that is your thought, then you are typical, but I assure you that you can learn to be creative. It is, of course, one of those skills that is best learned in childhood (like

language skills) when you are laying down the basic connections in your neural network, but adults can significantly expand their creative skills as well.

I will resist a large digression here to once again rail against the abysmal record of institutionalized education in America when it comes to teaching creativity. Suffice it to say that it is pretty well dead despite the efforts of most dedicated teachers to save it.

So what do you as an adult have to do to learn to be creative? First, you must stretch your imagination at every opportunity. Second, you must actively pursue knowledge of the creative arts. Third, you must consciously engage in creative activity, either actively or passively. Easy to say, but you could spend several more lifetimes doing it. Starting now and running as fast as you can is the key. Whining that you just aren't the creative "type" doesn't cut it.

Stretch Your Imagination

The root of "imagination" is "image." Mental image is metaphor, and forming mental images is essential to storing and retrieving knowledge in your personal universe. Therefore, expanding your skill at imagining is essential to the self-realization process.

Imagination is the intellectual construction of experiences, emotions, and images that have to your knowledge never happened in reality. While they have never been part of your existential world, they become part of your personal universe through the intellectual process, and you can draw on any intellectual knowledge you gained in the imagination process. That is, when you imaginatively construct a situation, you are actually analyzing knowledge stored as metaphor and paradigm in your personal universe in search of logically related knowledge and its values. The construction process extracts parts for inclusion, might mix in a dose or two of experience, and ultimately assembles those parts into a new metaphor with all the characteristics of a purely experiential metaphor. This new, imagination metaphor is stored with its own set of internal values and is available for future recall.

Consequently, every time you use your imagination you add to the scope and complexity of your personal universe and enhance the operation of your neural network by building more access pathways. This process starts early in life, probably first as an enhancement of the survival instinct through inflating fear and then progresses based on your developmental environment.

This might also be a reason why the standardized tests of formal education fail to provide consistently accurate assessments of future performance in real-world situations. Creativity is rarely measured in the standardized testing procedures, which renders them fairly useless for being able to measure a persons ability to cope with unanticipated situations by thinking and acting extemporaneously—a highly prized attribute in the business world, for instance.

For most of us, verbally related experiences of others or of written or visual fiction were key elements in triggering the imagination. While I cannot remember it, I am sure my parents told me stories and read to me as well at a very early age. The stories and reading were probably the usual fantasy of fables and fairy tales, which are designed to both teach cultural values and to provide a wide range of emotional stimulation.

The earliest reading on my own that I can recall is of comic books, where the pictures help you work through some of the more confusing words and syntax. The staple of comic books is fantasy, which is a purely intellectual activity that can be enormously stimulating for the neural network. I had my choice of anthropomorphized animals or superheroes and I gravitated quickly to the latter, probably because of their

inherently greater intellectual and emotional possibilities. But comic books also delivered huge doses of personal and cultural values which no doubt still influence my carefully considered current set.

So, fantasy can be internally generated through the exercise of the creative processes of the neural network or it can be from an outside source like a book, play, or movie. Whatever its source, however, fantasy requires a ". . . willing suspension of disbelief . . ." (thank you, Mr. Coleridge) that cuts the neural network off from many of the shortcuts learned by experience of the existential world. Consequently, the whole neural network is brought into play when the intellect is engaged in fantasy. Since fantasy involves allegory or perspective shifts of values to have meaning, conclusions drawn from intellectual examination have relevance in the existential world and are discriminatingly included in the personal universe.

The media of today is comprised mostly of fantasy. There is some history, biography, documentary, and news, but by-and-large it is all fiction of one type or another. This is not necessarily bad. In fact, it could be extraordinarily beneficial if the general population were equipped with a good set of analytical tools and the knowledge of why and how to use them. Unfortunately, it is not so equipped; that's why I'm writing this essay.

What has happened with the media explosion in television, movies, music, and talk radio is that it is caught in the necessity of profit. This leads inevitably to tailoring the media to the lowest common denominator. That is, it is usually limited to the lowest common denominator of its audience's educational level, analytical ability, and personal and social values. Since these characteristics have all been steadily declining in step with the education system for the last half-century, the current nature of the media is understandable as a reflection of this same decline. To make matters worse, the blanketing media is so influential that it is itself pulling down intelligence and values, down and around in a counterclockwise spiral (in the northern hemisphere) like you see when you pull the plug on the bathtub—you know where it's all going if something doesn't change soon.

There is some hope that this media value decline will reach a natural balance point, but it is slim and it might not be in time to be of much help for American society. The saving element of media dynamics might be the sheer size of the audience. In the last few years, media moguls have begun to recognize the commercial value of the niche market and technology has provided the bandwidth to let them pursue it. This might be enough of a toehold for the new generation of computer and media savvy Americans to haul themselves up out of the drain.

For those of us who can still analyze and discriminate, the media soup does contain some detectable meat in its watery substance, and of course, there have always been a few media stalwarts (thank you, NPR and PBS).

Not only does the practice of imagination add significantly to your personal universe and neural network connectivity, the ability to imagine has day-to-day practicality in solving all kinds of problems. Effective problem solving requires imagination. Without the capability of imagining all the possible answers and their consequences, there is no way to know if your answer is as correct as it needs to be.

So let your imagination run whenever you can. You can do it any time and anywhere. Daydreaming can turn a necessary but boring period into an enjoyable and rewarding event. Your fantasies can provide a door into the possible directions you can take your future. Besides, "if you don't have a dream, how you gonna have a dream come true?" (Thank you again, Mr. Hammerstein).

In Pursuit of Creativity

There are no better intellectual pursuits for expanding your personal universe than the arts. There are no better ways to build a wide range of neural network expanding metaphors and paradigms than through pursuit of the arts. There are no better ways to experientially, emotionally, and intellectually enrich your life than through the active pursuit of liberal arts knowledge.

These are the same liberal arts we have removed from formal education in this country to make more time for family neglected nurture (at its best; at its worst, just plain babysitting) and "practical" subjects. You remember liberal arts, don't you? They were things you studied in high school like literature, music, art, theater and poetry. You could even add history to the list if you were lucky enough to have a teacher that taught it from a cultural perspective, or maybe civics if there was any emphasis on ethics, and so on.

These were the subjects that taught you how to think, because they demanded thought for you to get anything out of them. Of course, a lot of those in class didn't get anything out of them, even if they could regurgitate for tests.

Since you are reading this, I assume you got something out of classes like these even it wasn't what you could have gotten. Or possibly, you went to college and studied engineering or some other non-liberal arts discipline that just didn't allow time for you to take courses that just taught you how to think. If you are one of these people, it's time you caught up.

When you pursue the liberal arts you are pursuing secondary creativity. You are seeing, hearing, or otherwise experiencing the creative output of others. While it is far beyond the scope of this essay to discuss secondary creativity in all the categories normally encompassed by the phrase "liberal arts," a few examples seem essential. A painting is a physical creation of pigmented media arrayed on some sort of substrate that projects a creative construct of the artist. This construct can be in almost any form from totally abstract to a detailed representation of some element of the physical world. The construct can be a reflection of some intellectual or emotional state of the artist or an effort by the artist to induce an intellectual or emotional state in the viewer—a statement or message, if you will.

While there are several schools of painting that concentrate on emotional messages, the ones most pertinent to stimulation and improvement of the intellectual processes of the mind are those that are themselves intellectualizations. That is, those which seek to at least include an intellectual message. This is accomplished usually by distillation of the message whether it be the combination, juxtaposition, shape, or interaction of color and geometry in a totally abstract work or the removal of extraneous detail in an objective work. When the artist distills the message, she or he is in effect creating a metaphor or paradigm that is universal enough to be interpreted by the viewer even though the message has been stripped of its unnecessary elements. The great artists achieve enough universality for their message to be successfully interpreted by most viewers.

To be successfully interpreted by the viewer, that viewer must access their own metaphors and paradigms stored by their neural networks. Their own physical, intellectual, and emotional experience consequently becomes the method by which the artist's message can be interpreted and in so interpreting, merge with the viewer's own knowledge base; thereby creating new and more complex metaphors and paradigms.

Like any form of learning, the more paintings or other artworks you see and interpret, the better able you are to interpret subsequent artworks you see.

Consider the works of Vermeer and Rembrandt where light (or its absence) is employed to focus the viewer on the subject and simultaneously subdue elements the artist feels are unnecessary to and distractive of that subject. For these artists, the painting is frequently boiled down to an ordinary person doing an ordinary task which totally absorbs the viewer's interest. If we were talking about a Dali surrealistic painting we would likely have a scene being depicted in a distorted or dreamlike image and employing other metaphors and symbols as a shorthand or layering of meaning. In a Picasso cubist period painting, we might even be talking about selective portions of the scene being depicted that have been distorted and juxtaposed for emphasis.

Neither Michelangelo nor Rodin made an attempt to provide detail in their sculptures that were in excess of those needed for their message. They posed their subjects, selected their perspectives, and deliberately abstracted or distorted anatomical elements of their subject if they thought it necessary to get the distillation of message they wanted. A more abstract sculptor, Constantine Brancusi, was highly successful at producing subject-recognizable but highly distilled works. These sculptures contained only the essence of the subjects uniqueness, with all the commonplace detail inherent in the subject removed—usually producing metaphors and paradigms so pure that a viewer's interpretations of the work are limited only by the richness of the knowledge stored in their neural network.

I could go on and on with theater, music, dance, and other forms of the physical arts, but the essential element here is to understand that developing your ability to interpret these art forms forces you to exercise your neural network and grow more adept at building the metaphors of usable knowledge.

The Power of the Written Word

I have already discussed the importance of fiction in discussing imagination, and I will finish up with a few comments on the rest of literature and a brief caress of philosophy. Literature is that body of the written word which was good enough to survive rather than to have layered itself into the morass of anonymity. It is a broad category that includes journals, works of history, biographies, and as many other niggling categories and subcategories as human creativity can concoct. They all use the written word as their jumping-off place, and no matter its form, the writer has imbued his or her works with images, metaphors, and paradigms that convey the message in the most striking manner they are capable of creating. When we read these works we incorporate these images, metaphors, and paradigms into our neural networks and enrich them with the interpretations we bring from our own experience and knowledge.

Of particular importance in the written word is poetry. The very essence of poetry is reduction of the message to images, metaphors, and paradigms and arranging and presenting them in ways that add new insight or new layers of complexity to our knowledge base. This is an exact mirror of how our neural networks turn raw sensorimotor and intellectual input into usable and retrievable knowledge. If you were put off by the difficulty of poetry in your school days, try it again. Your neural network might now be of sufficient complexity to see meanings you did not have the ability to fathom before, and the effort is the perfect exercise for expanding the capabilities of your neural net.

This brings us to philosophy—how we think or should think and what we should think about. But I am not going to recommend what philosopher you should delve into.

I want to point out that philosophy is found in virtually all great art and literature. You can't read *Macbeth* without being immersed in it. You can't see *Guernica* without feeling it jump off the canvas and grab you by the throat. You can't stand at the foot of the *David* and not have it wash through your soul.

Some of the greatest intellects of the Twentieth Century were not only scientists but philosophers; their work would not have had the impact it did without being integrated into the sentient experience. Though Einstein had trouble with math, he was the master of metaphor and the creator of paradigms. Heisenberg related the micro-micro to the question of being. Gödel looked at the existential world and reset all of logic. Hawking looked at the cosmos and opened new avenues of knowledge. If you have read and understood all these guys have to say, you should be writing this essay and not reading it.

Easing Into Active Creativity

Having spent the better part of my life in one creative endeavor or another (hop, skip, and jumping around as the spirit possessed me), I can testify that the neural stimulation and satisfaction provided has no experiential equal. I recommend active participation in as many forms of creativity as you can fit into your undoubtedly busy life.

Many of the readers of this essay probably feel they just don't have what it takes to be great in the creative world, and since humanity has produced very few truly great creative minds, this is probably a valid position. However, if you have read far enough into this essay to be reading this paragraph, chances are you do have what it takes to participate beneficially in some sort of creative endeavor right now, and if you pursue self-realization as outlined herein, you can expect any effort you make to get even better in the future.

Easing into creativity is as simple as finding a craft hobby you like (for whatever reason) and pursuing it. However, in this pursuit, you must go beyond the instructions provided by others, and you must pursue this craft hobby in all its complex detail. As you do this, you will find your interest growing, and eventually, you will find yourself adding either an element of simplicity or complexity to the usually bland instructions—or you might just write your own instructions.

Speaking of writing, you could certainly ease into that area of creativity by starting to keep a journal of activities and interests, which is more craft than art, like journalism. If you don't think that a journal sounds very creative, you haven't read enough of them.
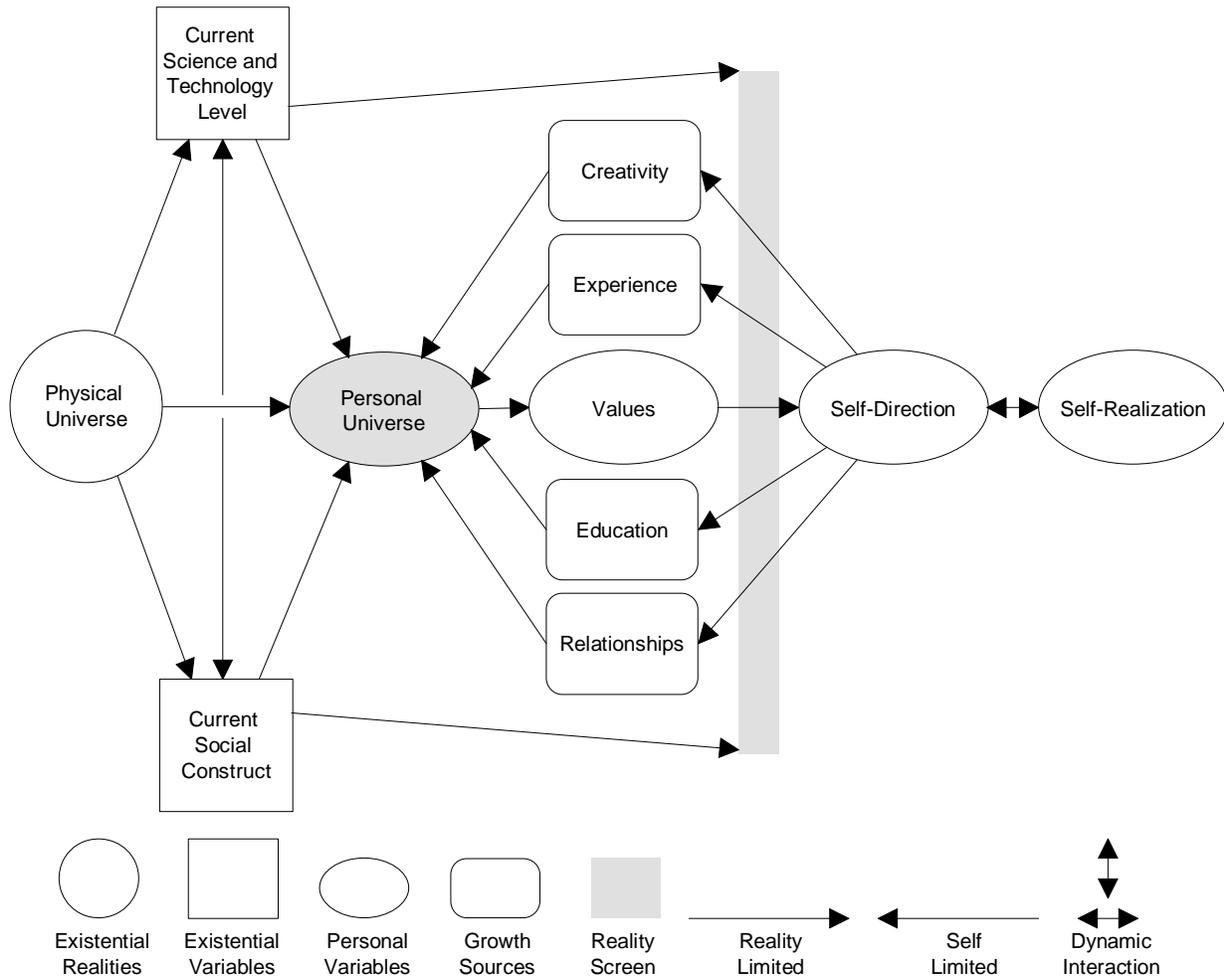
If writing or craft hobbies don't turn you on, try one of the performing arts. If you can't sing or dance, volunteer at your community theater. They are always looking for people willing to help with the craft elements of the endeavor, and just about everything they will want you to do will put you in direct contact with an element of creativity.

Dedicated pursuit of a craft frequently ends up crossing the line to art, as the complexity of metaphor grows in the product. Lots of artists started first as avid observers or as simple craftsmen or craftswomen. Pick something you like and try it. You might surprise yourself.

Staying in Touch with Reality

We have examined the four major paths to increasing the size of your personal universe, but it is now time to add an element of caution. Wherever you are on the feedback loop to gaining direction of your own life (that is, wresting it from those who would tell you what to do and think and exercising those functions through the

application of logic to your own knowledge base), you must be vigilant in setting screens to assure that your universe is populated with the best knowledge available.

Existential Realities	Existential Variables	Personal Variables	Growth Sources	Reality Screen	Reality Limited	Self Limited	Dynamic Interaction

You do this by relying on friends to provide you with their knowledge and experience about books to read, professors to select, things to see or do, and wherever else you feel comfortable using your knowledge of them to guide your own endeavors. You can become more hard-nosed with your own time, spending it where it is productive and avoiding wasting it on trivialities. You can be more discriminating about your associations, at least as much as your work and personal life allows. You can consciously apply logic to all decisions and minimize those that are made on an emotional or indoctrinational basis.

Finally, you must be prepared to analyze all potential input and deal with it in its proper category. You must be able to know if the information presented is myth, religion, urban legend, old wives tale, or any other form of faith rather than reality. To do this you draw on your personal universe of knowledge and your own powers of analysis and applied logic that will grow better with every passing day of your life.

The Neural Network Revisited

Let's jump back to the neural network so we can see the results of all the effort it takes to increase the size and complexity of your personal universe. To do this, we will take a little poetic license with strict definitions.

We have talked extensively about how your mind stores its information from sensorimotor input as observational facts. A bunch of these together can provide a storable image. When images are stored as a group, they can become a metaphor. When metaphors are stored together, they can become paradigms.

When taking this hierarchy under consideration, you should see immediately that I am not stating a literal truth but am presenting you with a metaphor of how the neural network stores its knowledge. More importantly, each layering from facts to paradigms functions as its own gestalt. That is, facts are gathered into images that provide more knowledge than the mere sums of their included facts. Images that make up metaphors provide much more information than their simple sums. Paradigms collect, condense, and refine their constituent metaphors to become virtual abstractions of the exceptionally complex realities contained in the metaphors themselves.

So what? How does all this affect my day-to-day functioning? What is the importance of knowing all this detail about how my mind stores and accesses information? The answer is the same as it is in any situation where you are at the controls. If you know how it works, you have a much better chance of using it efficiently.

The really good image, metaphor, and paradigm builders are those that can somehow always offer potential solutions to most any problem; those that are so extemporaneously competent that they can take off immediately on any idea that hits the table; those that seem to have extraordinary powers of intuition. What these people have is a great number of paradigms that are connected in parallel within their neural networks. Fuzzy logic allows almost immediate access to high probability information that can be brought to bear on most any topic, and while it might not be the absolute answer, it is frequently close enough.

If you have spent any time in the business environment, you have probably been in a meeting where a problem was posed, one of the people sitting around the table proposed a possible solution, listened carefully while their proposal was encouraged-discouraged-dissected by the other participants, and finally came up with the excepted solution that, while not exactly the original proposal, was close enough to have stimulated the answer. This person had a personal universe that was large, a knowledge base that was packed with paradigms rich in complexity, and neural network connections that allowed quick and effective access to good-enough knowledge.

I will provide one additional image or metaphor about how the brain works. People who have a great deal of memory stored information and a neural network capable of retrieving at least most of it are those who have intelligence. Those who have been able to construct a hierarchical organization of that information and the concomitant additional parallel access pathways are those who have wisdom. Those who have embraced complexity in their hierarchical organization and accepted both the reality and limitations of their knowledge are those who have intuition.

Looping for Life

By now you have probably forgotten that this was supposed to be an essay about self-realization. It has probably seemed more like one of those boring self-improvement diatribes. However, I will now try to relate all this to our stated objective.

Everything we can observe in the universe possesses the potential to change its state of being. This applies to the sub-sub-sub-atomic particles to which we have found no sub-ending and to the super masses found as black holes at the centers of galaxies. In fact, everything we have observed so far in the universe seems driven to become more complex, more unitized, and more integrated.

As promised, we are indeed going to avoid metaphysics, but we will pose possibilities short of absolutes. If there is any meaning to sentience in the universe, it must first survive or that meaning is really meaningless (circuitous, but think about it). To survive, sentience must be at least self-replicating, and the possibility of survival can be enhanced if it can have meaning as survival of species rather than just the individual.

However, for the individual to have meaning in the larger context of species, it is necessary for the species to continue with input from the individual. This is obviously done though the mechanism of genetic transfer, but this is in no way reflective of sentience. If sentience of the individual is to have meaning, it must survive and contribute to the growing sentience of the species—it must go beyond the reproduction and child rearing of non-sentient species.

Consequently, if an individual sentient life is to have meaning, it must contribute to survival of its specie in a way that is unique to sentient life—intellectually. (Remember, you wouldn't rather be a pig.) Since society was created as the most efficient way to ensure the survivability of our specie, a contribution to society is the most efficient way to ensure your life has meaning.
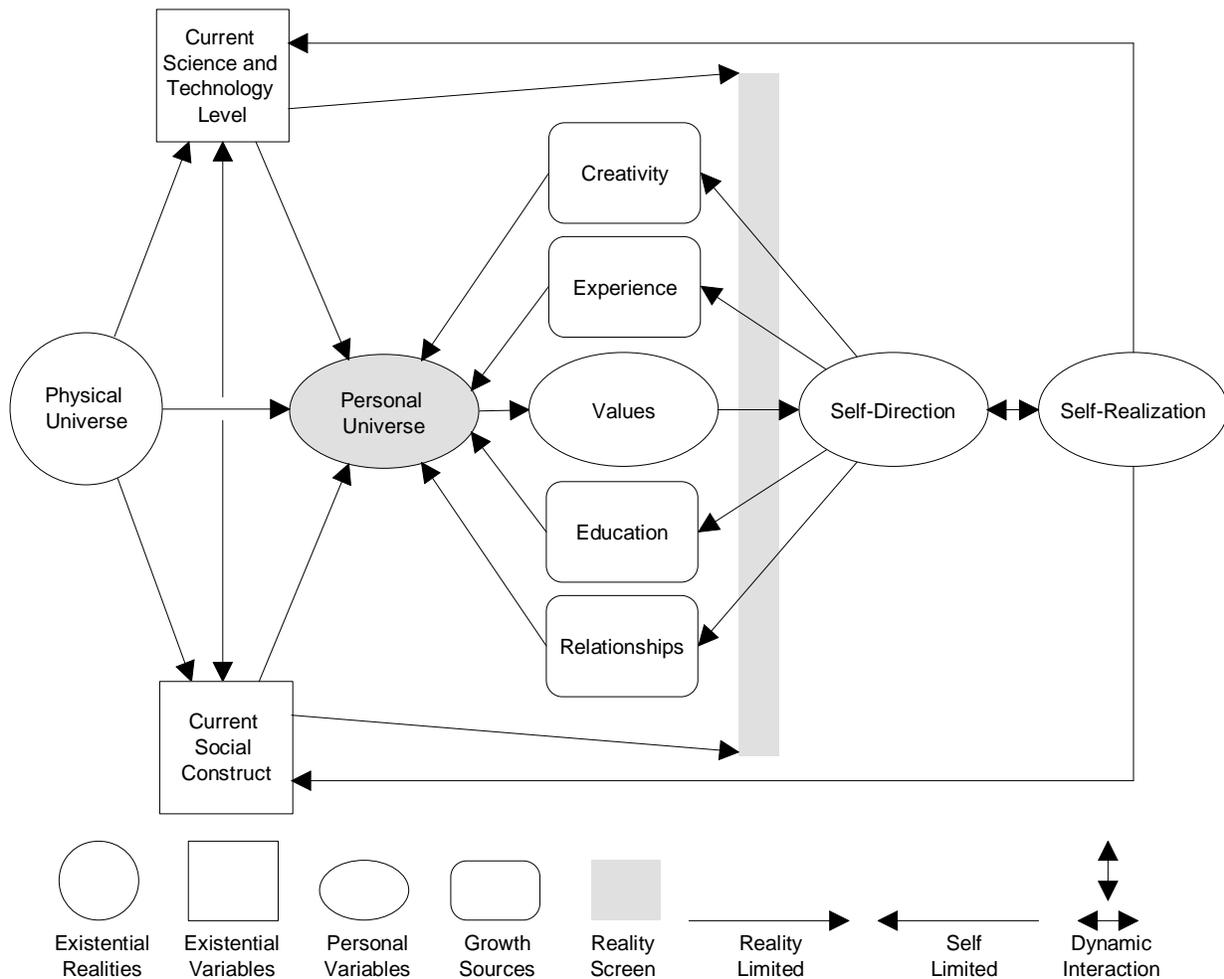
(All elements of the diagram)

You can make this contribution directly by whatever means in which you participate in the social construct or you may make it via a contribution to science or technology. Any positive addition or change you are able to achieve provides meaning to your

sentient self. It can be in science or technology, politics, business, the arts, craft, skill, hard work, or just compassion, but to be the most effective, to provide the most meaning, it must be the best you can give. It must come from a *you* that has consciously set out to realize as much as possible of the potential within.

The Inevitable Meaning of Life Digression

There are lots of people that believe the universe is directed by a higher consciousness and there are a lot of us who believe that the truth of that belief is unknowable. Fortunately, it is not necessary to unravel this enigma to bring meaning to the meaninglessness fostered by an apparently mechanistic universe. That is, whether you possess metaphysical faith or not, you can still find meaning in your personal life. This is by no means a new idea. It is readily observable in the fact that the suicide rate of those possessing metaphysical faith of one persuasion or another is no different from those who do not possess that faith. In the face of apparent meaninglessness people find the courage to be (thank you, Mr. Tillich, for the observation even though you were wrong about the reason).

That courage comes from the non-metaphysical meaning or purpose of life: survival. It must do this survival in a universe that has a single inevitability: increasing complexity. Life has so far met the challenge in our tiny piece of the universe by embracing the growth of complexity. On our planet life has grown in complexity from the simplest of self-replicating forms to produce sentience. This sentience continues to grow in complexity and as it does so it increases its chance of survivability. Intelligent design or inevitability? It doesn't matter. It's the way things are.

The simple imperative of survival of the individual has added the complexity of survival of the specie group because it is a more efficient method of survival not available when acting alone. Early shared task groupings (family, tribe, community, etc.) have become more complex as mastery of the environment and intellectual acuity have grown, eventually producing a very complex social construct.

With this social construct has come science and technology, and it has come for the same reason—understanding of how and why things relate and work enhances survivability. Science and technology working dynamically with the social construct provides the sentient human with an intellectual complexity orders-of-magnitude greater than the intellectual simplicity of early man.

While we can find meaning in the imperative to survive, it is an intellectually simple meaning and only satisfying in a simple way. Our greater intellectual complexity demands more complex and fulfilling meanings and purposes for our lives.

The intellectual nature of sentience is not satisfied with the physical pleasure and satiation of lower life forms. It demands the much more complex satisfaction of intellectual fulfillment. While it is still true that the greatest satisfaction or fulfillment comes from doing what we want to do, our more complex intellect is capable of trading off the immediacy of physical satisfaction for later but greater fulfillment. In fact, it is not only capable of doing this trade-off, it is an imperative growing inevitably from intellectual complexity.

"Ah, there's the rub" (Will, you devil). Anyone who has ever done a real trade-off analysis probably knows how endlessly complex the process can be if pursued to the extremes of possibility. Likewise, they can understand that too surface an analysis is meaningless, which brings us to the purpose of this essay: how does the individual human sentient equip itself with the most effective tools for achieving the greatest possible satiation-pleasure-satisfaction-meaning-purpose-fulfillment of life?

Self-realization in a Nutshell

The self-realization process begins with coming to grips with the real world. That is, the physical universe as we can observe it, not some ideal that we would like it to be or as some metaphysical construct in which mankind ". . . struts and frets his hour upon the stage . . ." (WS). Just the facts as best we can determine them.

From our knowledge of the universe, which comes from our physical interaction with it, our intellectual understanding of how it works, and the social necessities we have accepted to survive in it, our personal universes are defined. These personal universes are unique to each individual and encompass all of our intellectual knowledge.

From this personal universe, each individual should establish his or her own set of personals values, not the values espoused by others. In doing this, each person must identify and evaluate any values imposed by parental or cultural conditioning, eliminating those values when they are irrational or otherwise fail to meet the standard of consciously accepted personal values.

Once this purification of values is complete, each individual is possessed with the tools required to lead a self-directed life from that point forward, but that does not qualify by itself as self-realization. Self-realization requires a never ending commitment to personal growth by expansion of your personal universe and constant re-evaluation of your values, expanding and adjusting them to suit the changing world in which you will always live.

The growth of your personal universe is enhanced by understanding how your intellect acquires, stores, retrieves, and utilizes knowledge. This understanding points to four major sources of personal universe growth through intellectual engagement, but is not in any way limited to them. They are experience, education, relationships, and creativity, and they must be pursued in a manner which is on constant guard to assure the use of rational thought and objective reality; excluding any influence of wishful thinking or irrational idealism.

At any point in this self-directed and endless loop of growth in your personal universe and values, you are capable of making a contribution to the social construct that provides continuity for your self, your family, and your specie. With each loop, however, your contribution will grow richer in its giving and more personally fulfilling.

Reading this essay by itself is little help in achieving such self-realization or whatever you might now want to call it. The essay hopefully provides some insights and guidelines, but the real help comes from the "self" part of the stated goal.

In Closing

(With thanks to several: Mr. Roddenberry for providing us with a seemingly futuristic action hour of television each week for many years that actually focused on the sentient condition, to the Star Trek: The Next Generation writer who created the phrase, and to Mr. Patrick Stewart who always delivered the line with its full weight of metaphor.)

To find self-realization you cannot stand back as the world drives by, you cannot retreat into a philosophical funk, and you cannot succumb to cultural ennui; to the contrary, you must **". . . Engage!"**