The Evolution of Ethics

Models of Ethical Evolution Evident in Physical Systems

The evolution of ethical systems can be illustrated using many types of physical and mathematical models. In concept, the cybernetic model is perhaps the most important one underlying human evolution. But the fine details of a wide spectrum of social phenomena that come to life as a result of cybernetic feedback are better described in other terms. A few of these, discussed in the following sections, are social chemistry, social physics, and social engineering.

The idea of placing human behavior in the context of engineering is appropriate, even though conventional engineering deals mainly with nonliving systems. Cybernetic principles that apply to nonliving systems can also be seen to be an integral part of living systems. Once human behavior is framed in engineering terms, the possibilities for insightful explanations of it multiply into many other categories. Some of these categories are efficiency, synchronization, communication, assimilation, dynamic balance, flow, and social equilibrium.

In the following pages, several different models of social and ethical construction are presented. These models are only a rough approximation of possible human relationships and psychological phenomena related to ethical development. One of the more complex models is the physics model, that is presented briefly in abstract form, but is a crucial area of inquiry because it may have the greatest potential to define human conflicts in fine detail.

The Social Cybernetic Model

Cybernetics can be thought of as a universal language linking both the living and nonliving worlds. It is, in and of itself, communication *in process* wherever a dynamic system is governed by feedback. It can be used to describe the operation of movement in a mechanical system as well as a social system. The flow of information in any type of cybernetic system can be disrupted and distorted, sending the system out of control. As organic systems have evolved over millions of years, it seems as though compensating mechanisms have coincidentally evolved to stabilize feedback, filter out environmental noise, or implement secondary behavioral routines when essential feedback has become distorted. The evolution of social rule systems on the whole seems to follow a pattern of providing the greatest systemic growth in the most reliable and enduring way, benefiting the largest number of people.

Cybernetic terminology that in the past has been used to describe dynamic principles in electronics and mechanical engineering, now can be used to describe human behavior. This is made possible by employing cybernetic considerations such as stability, response time, delay time, settling time, sensitivity, and disturbance rejection.

Stability**:**

In mechanical and electronic systems, instability will set in if destructive oscillations caused by too much feedback are not dampened by design. In the same way, cultural systems will break down from strong feedback if stabilizing systems have not evolved coincident with the intellectual and technological growth of those cultures. Another example of coincident evolution might be seen in the example of clotting mechanisms in physiological systems to repair breaks in blood vessels when they are punctured or cut.

The idea of stabilizing mechanisms developing in social systems follows to some degree the example of feedback in electronic systems. If the microphone of a public address system is placed too close to the speakers, some of the output of the amplifier is reamplified again and again until the amplifier breaks into oscillation. If these oscillations are sustained, they can drive the electronics in the power amplification section to overheating and failure. In the same way, human conflicts can foster circumstances where the intensity of conflict rises to higher and higher levels in a vicious circle of action and retribution until something catastrophic happens to stop the oscillatory and escalating nature of the conflict. On the one hand, a vibrant social system needs a high level of creative tension to drive its evolution forward. On the other hand, it cannot survive and prosper if the tension exceeds a certain threshold perpetuating a destructive cycle of conflict. In this light, the evolution of moral, manner, legal, and customary systems of rules intervenes in the dynamic tensions of a growing society and reduces them to a tolerable and productive level.

Take, for example, the

manners and customs have on wearing down strong emotions that would otherwise destabilize the prevailing social equilibrium. People enter and leave many kinds of systems day in and day out. They may visit a physician, shop for groceries, meet with a teacher, and deal with institutions of all descriptions. All these systems are input/output economies. Each promotes a similar theme of protocols and decorums. While customs vary slightly from system to system, they facilitate effective communications, mitigating stress and emotions by their familiar and repetitive nature. If powerful emotions surface, they are *chopped* and dissipated in the process of navigating the many demands and customs of each of the systems a person must enter and leave daily. This dissipating force is further strengthened by the effects of wired-in behaviors learned over many years of formal education that give emotions reserve and restraint. Imprecise communications can exacerbate already heated conflicts, driving relationships to instability and breakdown. A person's emotional state prior to a conflict can affect the dynamics of feedback that govern the emotional level that a conflict will reach. If a person is upset, in a state of stress, and afflicted with fatigue, imagined words and actions can impinge upon the clarity of his or her thinking. For instance, two nations at war reach a settlement. A few days later a village is attacked and several people die. But the attack was carried out by an extremist group that was not in touch with the political developments that brought about the peace. Those being attacked might overreact under stress believing this was a sure sign of renewed hostilities. But there was, in fact, no intention of either nation to break the peace. There simply was not

enough time for either nation to fully coordinate the activities of their various remote political factions.

Strong emotions have momentum. They simply cannot be stopped in an instant. In this respect, both participants in a heated confrontation may have a predisposition to act immediately and powerfully on their negative emotions brought on by coincidental or imagined events. Thus, some mechanism of restraint must be present in conflicts to stabilize the clash of powerful emotions. In practice, customs and social protocols generally do the work of calming emotions enough to allow peace and understanding to grow .Intense human relationships appear to stabilize themselves when facilitated by a highly evolved system of roles prescribed for people in each particular situation. These roles come from learning, literature, and formal rules. Thus, from the beginning, each well-educated person in a highly organized society has the means to overcome the greatest obstacles in life by adhering to certain customs and values.

Learning a culture's customs conditions a person with responses that stabilize their emotional actions, reactions, and potential overreactions in the social environment. One only need to think of two people under the pressures of stress and deadlines who have bumped into each other. Both may be quite ready to make an issue of the collision were it not for the ordinary protocols and decorum required of civilized people whenever there is a mishap. Even if a person is not at fault it is sometimes customary, in highly charged circumstances, for the person who is not responsible for the accident to excuse him or herself if that is what it takes to defuse the situation. Custom forces communication along tried and true paths of expression. With few exceptions, custom requires a person to respond to serious problems by gradually communicating strong emotions, instead of holding back and then suddenly blowing up full force as a tactical means of solving personal problems.

Response time:

Response time can be thought of as a measure of the quickness of a system to reply to a necessary change. The responsiveness of, say, the read/write heads on a computer hard disk are necessarily faster than the responsiveness of the cruise control on an automobile. Each of these cybernetically controlled systems demands a predetermined response time. In social cybernetic systems, circumstances and environmental settings dictate, to a certain degree, responsiveness in human social systems. Certainly a person's response time to danger should be faster at night on a dark inner-city street than during the day, in the heart of the city's business district.

When a person is driving an automobile, he or she becomes part of the vehicle's feedback loop that governs its speed and direction. The more responsive drivers are to changes on the road, the more likely they will reach their destination safely. However, if they are under the influence of drugs or alcohol, their response time will be slower and their chances of having an accident will increase. The proliferation of these types of problems is perhaps the inspiration for the creation of finer points of law and morality where drugs and alcohol are concerned.

Too slow a response time can endanger a person's life, but too much responsiveness can be just as deadly. Hardly a week goes by in a large city

without a violent confrontation occurring in which someone dies. In some instances, one or more of the combatants has reacted too quickly and with too much force. They possessed a weapon, but did not have the emotional restraint to use it properly. Emotions overshot their mark as their reactions fell out of phase with their thinking. Since they were emotionally immature, they could not coordinate their emotions and thoughts sufficiently to make fine distinctions of action and reaction. Thus they were left to play out their primitive instincts in a raw and violent way. In this respect, one of the greatest moralizing agents available to human beings is education. The process conditions people with many fine points of behavior that slow and temper the extremes of involuntary emotional responses. It does so both formally, by way of classroom studies, and informally, by way of immersing young people in a highly fluid, social-cybernetic setting where they must learn to deal with their emotions effectively in order to completely assimilate into the school environment.

Delay *time:*

Maturation and acculturation is an almost endless learning process that requires people to leap over one hurdle after another until their emotions are tempered. This type of learning tends to slow reactions down, while at the same time encouraging time for thought and reflection. Such conditioned behavior delays and frustrates the expression of inappropriate impulses. While a woman might want to express rage, she must be at the same time in tune with the customary ways of dealing with intense emotion, thus protecting her future relationships and opportunities.

In a society comprised of a diversity of people and backgrounds, miscommunications occur constantly. Consequently, a slight delay is needed in the dynamics of interpersonal relationships that have reached a level of conflict. Delay compensates for a disparity in maturation, education, intellect, and acculturation.

Settling time: In situations where hostilities have already broken out, response times to stimuli are operating in full force and on a survival basis. Combatants in this condition are hypersensitive and under considerable stress, potentially inspiring runaway imaginations. They may begin to see and believe things that do not exist or have not occurred. Since their response time is very fast, they think less of what they are doing and rely more on what they believe they see. De-escalating the dispute thus becomes difficult if the contentious parties are not willing to let the hostilities die out. Emotions lead to emotional overswings that inspire other overreactions, and so forth. Thus, if there is to be an enduring peace, something must occur so that transient and spurious oscillations are filtered out. There must be a pause after an agreement long enough to allow these emotional oscillations to subside. Otherwise the conflict will simply regenerate itself, and nothing will have been accomplished.

The idea of settling time begins to merge with another mathematically-based system called mathematical game theory. If there is a decision to declare peace, the idea follows that one party or the other may defect from their commitment and take advantage of that peace if they see an opportunity. But there is a fine difference between predatory games of advantage and unintentional conflicts that demonstrate a unique oscillatory pattern. In the former, conflicts continue to escalate not because of oscillation, but because

a calculated behavior was based upon a predatory algorithm where the rule of action is to take advantage of peace in the smallest of ways. These ways operate at the level of plausible deniability. They are small infractions that over time produce large gains by tactically *denying convention*. Here, an unwary person is leveraged into ceding more and more benefit to the manipulative and aggressive person. Eventually, the exploitative tactic can provoke a powerful counter-response. However, settling time is less an issue in conflicts that arise from calculated aggressions than it is in more innocent circumstances.

Game theory overlooks the dynamics of a preset system of rationales defining *just cause* for predatory or non predatory attacks. People have emotional and financial limits. When they do not feel that they have been treated well, they may defect from agreements if given the opportunity. Thus, the way in which people treat each other in interpersonal relationships can, in and of itself, become the just cause for defecting from agreements. Or, if there is a high level of stress, either of the players may perceive imaginary events that frightens them into an early withdrawal from an agreement and into taking what they can from an established position of strength. And, when people prematurely defect, good relationships are broken and people are hurt simply because they were neither considerate nor sophisticated in their dealings. Consequently, if settling time were not forced by custom and moral rule, there would be far more egregious acts in the society.

Defecting from agreements can have deadly consequences in which the person being taken advantage of finds the resolve to overcome the adversary. But what appears to have survived thousands of years of civilization-building are the values of patience and restraint, rather than the predatory values of taking advantage of others, because there are rewards for patience and restraint that can be seen and understood.

Sensitivity:

Social cybernetic systems are perhaps unique in the way in which excessive feedback can lead to destabilization of nations, groups, or individuals. In a social system, feedback comes from a wide spectrum of activities. If cultural and individual growth is maximized where feedback is held within tolerable limits, it correspondingly forces constraints on a person's level of sensitivity to stimuli. This means that some compensating system, such as imposed rules, social sophistication or reasoning ability must adjust for the exaggerated reactions of a person who is over-sensitized to ordinary social stimuli. An example of this might be two combatants caught up in an intense emotional struggle in which each person's will to prevail exacerbates the conflict to the level of raw survival. In this state, both combatants become hypersensitive to any type of stimuli. They can become so sensitive that they tend to exaggerate the importance of ordinary events. This means that ordinarily low-level feedback is suddenly perceived in an intensified form. Although they are not strong feedbacks, they nevertheless affect the emotional stability of a person as though they were.

Disturbance rejection: There appears to be a relationship between the adoption of strong values and significant goals and the likelihood that a person might achieve his or her dreams. If a man of average intelligence is

attempting to get admitted to a graduate school, he is setting a goal that is difficult to achieve. One very effective strategy for him to adopt to overcome adversity, is to become increasingly efficient in his actions. This may mean numbing the senses to all forms of outside noise, producing an increase in concentration that makes achieving one's goals a viable reality. The adoption of strong values and significant goals adds an intensity and responsiveness to feedback. If the man begins to drift even slightly into pleasure-seeking activities, the feedback loop is so tight that he cannot help but notice the deviation from his established goals or values.

There is a secondary benefit to establishing a tight feedback loop to achieve one's ends. When goals and values powerfully influence behavior, people are better able to synchronize their thoughts with their emotions. When their emotions and thoughts are in phase (an electronic term), it is more difficult to pursue an agenda of hostility, anger, or rage. For example, a student is studying for his or her final exam. An immature prankster walks into the student's room and removes a much-needed book. The owner of the book, later discovering this, could easily break into a rage. But since there are only a few hours before the exam, a state of rage could impair the student's ability to study. Even if the anger suffices to inspire an intense search for the book, and leads to its return, the high emotions of anger must be suppressed. If a person's commitment to his or her goals is powerful, a temporary surge in high emotions will not break that commitment. If succeeding in school remains the student's main focus, then it will become immediately clear that maintaining a grudge against a prankster is less important than studying for an exam. So, when strong goals and values are guiding peoples' behavior, they tend to lock thoughts and actions into patterns conforming to a tightly disciplined world; so tight that disturbances can easily be dismissed while they are pursuing their primary goals.

When emotional restraint is practiced, there are fewer unexpected *response emotions* to deal with, allowing a more efficient use of time and energy. Restraint allows a person's emotions to rise very high in order to communicate their frustration, yet immediately drop to a very low level without burning bridges in a rage. This allows a person to *shed power*, dissipating emotions more quickly than new ones can arise. Responsiveness and full communication are maintained, all because a system of goals and values has sustained them through emotionally difficult times.

When the feedback loops by which people seek their ends are tight, they can synchronize many events at once. If the people involved have not created many problems, which later come back to haunt them, they will be in a better position to plan for the future. The fundamental idea of being ethical is that life becomes very predictable, with a minimum of problems. The side benefit of staying on an even keel is that one can work toward his or her goals in an extremely efficient way.

There is an analog to this in the cybernetics of mechanical systems. If there are several conveyer belts working in synchronization leading to the rapid assembly of some product, maximum efficiency will be realized if all the parts being assembled come together at the right time. But if some of the conveyer belts slow down every time an irregular load is placed on them, they cannot predictably deliver every part in synchronization with every other part on the assembly line. In order to synchronize the speeds of all the delivery systems, there must be some sort of compensating system built into

the electronics of the drive motors. Thus, disturbance rejection in a mechanical system operates in the same way that social rule sets help keep civilization running on time, and on course, day in and day out.

The Chemical Model

Social chemistry is like the fine wine of human understanding, revealing infinitesimally fine details of human interaction that flow uninterrupted from one element of human knowledge to another. There is a sense of poetry to be observed in the chemistry of good human relationships. Like an appreciation of fine wines, the delicate knowledge of human behavior, known in an instant of insight, shows a rare elegance of life evolving from behavioral observation into art. There is love, greed, and revenge. There is a thirst for power, sex, and wealth, all mixing and fermenting in society to produce a wide spectrum of human emotions. From this ferment, one sees the inspiration for centuries of fine writing as embodied in the highly sensitive emotions woven into Greek tragedies and Shakespearian plays.

It would seem, on the surface at least, that human beings are emotional creatures first, and rational ones second. In many cases, the expression of human emotions, reacting to other emotions, operates as a silent language behind the less *affective* words people use to communicate. In this fundamental emotional state, people possess a distinct *reactivity* to specific times, specific places, and circumstances. Most everything known of the social condition of humans is known in terms of relationships. Some relationships, like flowers, bloom only when certain conditions exist.

Some emotional reactivity seems genetic, while other aspects appear learned. Fortunes can rise and fall in an instant based on a heightened sense of what people's reactivity to certain conditions and events will be. In business and politics, the object is to move people to action. Finding a person's reactive points is as much an art as it is a science. If changing the ambient mood is what it takes to get customers into a buying mood, then music will be used as a sales strategy. Sometimes the strategy incorporates symbols that catalyze a process that moves people to action. Other times, the catalysts are colors, smells, or words.

The most common forms of human chemistry can be seen in the dynamics of romantic affairs. There is also the chemistry of large numbers of people coming together in a unified social movement that is remembered in the cultural lore for generations. These are examples of chemistry leading to positive circumstances. There is also bad chemistry, which leads to trouble and tragedy. This is sometimes seen in the activities of small children who, without proper supervision, can become intoxicated with malicious fun. A building that has several windows already broken can suddenly become the object of such fun if there are rocks nearby on the ground. Another example might be the situation where several alienated adolescents are riding around in a car, under the influence of alcohol, and in possession of a gun. Under ordinary circumstances, none of these adolescents would be so reckless as to kill someone. But the chemistry of the moment may create an ever-escalating thirst for excitement to such a degree that fantasy and reality are destined to collide.

When many people are forced to live and work with each other in confined spaces, variations in their cultural backgrounds can lead to some form of

discomfort or conflict. A person who grew up poor, having to fight for everything they have, can be an annoyance to others who grew up in better circumstances. Each of these people is predisposed to a certain reactivity to emotionally charged words, events, and actions that can trigger certain responses sometimes predatory, sometimes aggressive. A man may think he is being exploited by what he perceives as aggressive behavior, unaware that his seemingly insignificant words or actions set off the aggression in the first place. Thus, the chemistry of human interactions requires the discernment of even the least significant of reactions that can grow to such a degree that they inspire overt conflicts.

The way the presence of morals, manners, and customs operate to minimize social friction goes almost unnoticed. But rule sets are the means by which a very large, complex, and technological society can grow and prosper. They integrate a diversity of backgrounds, while mitigating the harsh collisions between separate social realities.

The methodical construction of social rules might be thought of as the tactical development of chemical retardants to keep powerful human reactions from going out of control. Sometimes the wrong mix of people creates a dangerous situation much like the careless manufacturing of explosives. If there is not sufficient filler in the nitroglycerin used to produce an explosive such as dynamite, it will explode when jarred. Likewise, social customs and rules act like a chemical *filler* to mitigate the unexpected effects of two very reactive people coming together. The protocols and decorums required of people in all social settings have a tendency to "chop" emotions so they do not escalate out of control. In effect, they act as chemical retardants to stop the spread of *fast-breeding* social reactions that lead to violence.

A high level of stress or tension can increase the level of a person's reactivity to others in the vicinity. As tension escalates, there is a greater tendency for undisciplined minds to say inappropriate things. These emotional excesses are often expressed in the form of some cultural stereotype, ethnic slur, or insult. They are spoken as though saying something will relieve the tension. But instead of relieving the tension, such words may convey a meaning or attitude that only catalyzes the chemistry of conflict. Cultural refinement, in this respect, is learning how to restrain the "wired-in" tendency to respond to environmental pressures by saying inappropriate things. A person knowing little more than good manners can successfully avoid the tendency to let emotions propel him or her into unnecessary trouble. Social selection and fitness, it seems, bear a relationship to the ability of a person to control impulses by using politeness and restraint in speaking of certain feelings.

When a person's health and welfare is at stake in unfamiliar territory, his or her tendency to react to anything must be minimized. For instance, a wealthy suburbanite whose car has broken down at night in a dangerous drug-infested neighborhood cannot react as he or she normally would to the people in the vicinity. First, the person cannot react in fright because that might invite attack. Second, the pressure of being in imminent danger places severe constraints on what the person can say. If people are nonreactive to those around them, the social chemistry remains unaffected. If they are reactive, they invite trouble. People who have been in tight situations tend to have a keen sense of where the chemistry of inappropriate words and deeds can lead.

The Physics Model

Momentum: In physics, an object set in motion, remains in motion until some force slows it or stops it. Similarly, human conflicts can be viewed as inspiring powerful emotions that once set in motion tend to remain in motion until some intervening force stops or stabilizes them. In social systems, instead of friction slowing movement, it is the sensibility learned from generations of human experience that slows disruptive and dangerous emotions. People responding to predation, manipulation, or abuse will sometimes bootstrap their emotions to a high level of intensity in order to convey a message to an aggressor that they are serious about defending themselves. But once boot strapped to a high level, these emotions can trigger a vicious circle of violent acts if certain social mechanisms are not in place. Such emotions can attain such a high degree of momentum that they will cause people to lose control of their rational faculties.

For example, in the workplace, a worker might find he or she is being abused by another employee. The conflict eventually leads to a situation in which emotions rise and gain momentum. Every verbal exchange sees an increase in the intensity of the conflict. Voices naturally begin to rise as one angry party attempts to communicate the intensity of his or her feelings to the other. But the intervention of customs and convention will generally break the gathering momentum of conflict. A simple reminder by other people in the vicinity that loud talking is inappropriate can jar the senses of emotionally distraught combatants, keeping their responses at a more civilized level. Social rules, in this light, serve as behavioral guideposts when emotions run so high that the people need direction in their thinking to lead them back to sensibility.

High emotions can be set in motion by productive or destructive manipulation. A healthy society thrives on a diversity of emotional exchanges. While humans might want to believe the world operates on a purely rational basis, in practice many relationships operate at the symbolic and emotional level. Words spoken without emotional content can only communicate so much information in a short time. Emotions, on the other hand, can be rapidly communicated in the context of words, tightly abstracted and condensed, so they immediately rouse another person to action. Since the ambient level of stress in the workplace increases using such techniques, mechanisms of restraint must also evolve to stabilize high emotions.

An example of constructive emotions that possess little momentum can be seen in the case of an office manager under intense pressure from upper management to get things done who overlays his communications with *snarl words* to provoke employees to immediate action. The conveyance of emotionally powerful words is sometimes the only way to move people to action, even though it inflicts pain and discomfort. Thus, condensed languages of symbols and emotional abstractions exist that do the work of moving people to action in a meaningful way. In a fast-moving and highly dynamic society, a considerable amount of stress is generated in this way. The intensity of emotions under such conditions can rise to a level analogous to working inside an environmental pressure cooker. In these highly charged circumstances, the emotional momentum must in theory be minimized, or extremely violent reactions can follow. In most cases, momentum that gathers where strong emotions are present is mitigated by the rational content of such exchanges compensating for errors and oversights in the

communication. Thus, the curve of emotional momentum in reasoned exchanges is far different from the curve of increasing emotional momentum in nonrational exchanges that have no accompanying compensating rationales.

The movement of energy in a system:

Conflicts are the end product of an endless process of defining levels of social status, wealth, political power, and educational stature within a social system. While this may only occur at the subconscious level, the conveyance of personal power represents human struggle at the primal level of competition. Each person possesses what could be called *personal power a* form of energy that, like electricity, can be used for productive or destructive ends. Possessing sexual knowledge, for instance, gives the more sexually experienced person a form of power over a more naive partner in romantic exchanges. The way people exploit this tactical advantage over other people can influence their success and acceptance in society. If the use of personal power creates too many negative repercussions, a person may well miss many educational and employment opportunities as the result of being distracted by the many interpersonal conflicts he or she has engendered or been drawn into.

The sum total of the social currency a person possesses can rise or fall each time one person connects with another person. If a heated conflict arises, disruptive negative emotions can emerge that cling and afflict a person's life for days or even years. If people burn bridges of opportunity in these exchanges, they then place themselves at a competitive disadvantage to others in the society. When this happens, emotional energy moves out of a person's system in significant ways. Immature action represents the movement of energy out of a personal system. Since everyone is susceptible to the migration of emotional energies into and out of their systems, the ultimate outcome of an energy transfer depends upon a person's long-term ability to be balanced and restrained in all emotionally charged situations. For many people, such ability comes with age and experience.

The presence of stress and fatigue in a person's life might be thought of as the end product of many energy transfers that go unseen by the conscious mind. An example might be seen in the seemingly playful nature of certain human involvements. Immature people sometimes play pranks on other people to get under their skin. But the object of some of these pranks appears to be quite predatory. If a man can be thrown out of balance enough to get him to respond in anger or rage, the prankster can receive a pleasure sufficient to encourage him or her to move to higher levels of exploitation. Such transfers of personal power are ultimately serious. Emotional energy in this example moves from the afflicted person to the prankster in what might be considered a parasitic attack on the victim's emotions. The attack has the insidious power to drain off much-needed energies. It is a concealed form of aggression that leaves the victims unaware of their exploitation by way of symbolic losses. Such exchanges may depress and dampen the spirit to produce and prosper, and therefore inhibit a person's ability to compete with peers.

Growing tension brought on by parasitic emotions inspires the afflicted person to respond in some physical or symbolic way to relieve the agony and pain of the attack. But acting out runs the risk of escalating a subconscious conflict

into an open and very conscious conflict that can build to destabilizing proportions. And emotions will rise unless they are *shed* by letting go, if only briefly, of some temporal impulse (i.e. to get back at someone, or reach equity in all transactions). An ability to shed power by letting go of what one thinks he or she needs to hang on to, allows a person to handle the power of many personalities in his or her life without having powerful personalities destroy the tranquility of the person's life. Parasitic emotions have the uncanny ability to make seemingly insignificant problems more important than they really are. Thus, if the loss of a few dollars in a transaction is exaggerated because of a fixation on the symbolic nature of the situation, a person may lose more than a few dollars being obsessed with less important concerns.

The heart of morality concerns the promotion of a better world in which predatory actions and parasitic emotions are discouraged in favor of more productive ones. A wide spectrum of fair and unfair forms of energy exchange exists in organizations, education, business, and friendships. In this respect, the methods by which a person gains power or an "edge" of any type is determined by traditions of morality, custom, and law.

Thermal energy: The movement of *social currencies* shows characteristics similar to the movement of heat in various mediums. If a hot liquid is poured into a thermos bottle, the liquid stays warm for a long time because it is well insulated. If the container is not insulated, heat will move from the liquid to the colder environment. Thermal insulation thus can be thought of as a barrier preventing the migration of heat energy. Likewise, there are legal and moral barriers that prevent the immature or careless movement of money (an abstract form of energy) in a society.

Money is a form of currency that is highly coveted in social systems. Very small children do not have a sufficiently refined knowledge of money to possess huge sums of it. Because of a lack of education in its usage, or a lack of experience dealing with predatory elements in society, children are not capable of handling their finances. The money would simply disperse into a highly receptive environment because of some flattering words or the turn of some emotion, prompting the child to give it away. The abject exploitation of inexperienced people likewise is obstructed by the prevailing moral sentiments in a society, which inspires more experienced people to intervene in an exploitative transaction if it catches their attention.

Social laws and moral sentiments create barriers of all descriptions, in all avenues of life where immaturity and inexperience would see the loss of either money or some abstract form of social currency. The freshness and spirit of youth, for instance, is well protected from exploitative adults by laws that keep older people from intruding on the lives of the young. Among the things carefully protected from exploitation is a boy or girl's sexuality. Their youth, and all of the dynamics of their intelligence, talent, and sexuality, have value. It is value they inherit or acquire. Most important, perhaps, is protecting this personal wealth in the sense that it may exist as a function of genetic design that allows an individual to find a suitable mate. Thus, if this currency is corrupted, it can destroy many opportunities in a young person's life. When there is sexual exploitation of the young, the currency exchange is so out of proportion that one person may gain a moment's pleasure while the

other has problems for the rest of his or her life. Therefore, barriers evolve to protect the treasures of youth.

Possessing a doctorate, a professional license, artistic talent, and the like, can also be thought of as currency which is vulnerable to the physics of currency movement in social systems. A professor who suddenly becomes the chair of a department in a large university comes into possession of a source of social currency. But that currency can rapidly be dissipated in clever seductions of the professor's emotions by more experienced and motivated people. But for the evolution of department rules dealing with such exploitation, the chairperson would become so mired in questionable activities as to be unsuitable for the position.

Societies structure themselves to "port" energy transfers to specific places at specific times to keep the rest of the system insulated from unauthorized energy leakage. Input/output economies thus are more efficient and more likely to flourish where less efficient systems fail. A social system must be rigidly constructed at certain points to maintain a level of efficiency high enough to survive. If energy can disperse in a structured system at will, there will be a loss of systemic efficiency. If a radio is immersed in water, it is likely to stop working. It will cease operating because its electronic integrity has been corrupted by the water. Its circuitry will be short-circuited in areas crucial to its operation. Likewise, if administrators and department heads in a university are allowed to govern their activities by rules of their own invention, the structural integrity of a thriving input/output system will be corrupted. Strict rules create barriers that work together to produce a system that works. Breaking departmental rules short circuits the integral construction of a fine-tuned educational system. Thus, rules of honesty and integrity often accompany high positions in a community or business. The requirements and purposes of integrity in personal actions are the same whether they apply to an institution or to a moral system. The same principle of systemic efficiency applies.

Electronic model: Social rules seem to have evolved without there being any comprehensive explanation for their existence. What has survived in the cultural customs, morals, and laws is essentially what works, even though the rationales for upholding such rules cannot be explained. Most people have goals and ambitions they seek all of their lives to realize. Some are more successful than others in achieving their goals. If one were to analyze successful strategies, perhaps one of the most common would be the capacity to learn how to integrate well socially. Insightful people realize early that the established society has the wealth and power they desire. It is attainable, but only by integrating one's talents and lifestyle with the needs and values of the established society. Thus, the process of integrating a small personal system into a larger social system has characteristics much like impedance matching in an electronic system.

A fundamental tension exists between the needs of individuals and the greater society. Each depends on the other. The culture can maximize its power by accepting a wide diversity of people. While it needs this diversity, it can only nurture those who do not excessively disrupt the order of things within society. People of many backgrounds comprise a system of authority. Assimilation into any cultural system requires, to some extent, acknowledging the power, talent, or educational abilities of long-standing members of its power structure. Those who assimilate well over a broad

spectrum of relationships are in a better position to succeed than those who frequently clash with accepted customs and authorities. Knowing a culture's customs and manners increases a person's ability to systemically integrate. As the large number of fine-tuned integrations increases, there is an exponential increase in systemic integration, leading to greater social power, wealth, or professional stature. In some instances, people have power and position due to their extraordinary sensitivity in matching their communications, body language, and attitudes to the people around them.

To realize one's potential is sometimes to attain a high level of social integration where jobs come easily, work is less stressful, and life is more enjoyable in a wide circle of friends. Each level of sophistication a person aspires to requires that certain protocols and decorums be recognized. Once they are known and implemented, opportunities and desirable employment benefits will naturally go to those who share common cultural values. But such integration only comes when there is a state of matching characteristics between the person and the cultural system she seeks to enter.

Effective social assimilation has its analog in the operation of electronic circuits. In an electronic system, if the output power of a transmitter is to be maximally conveyed through a wire to an antenna, all of the components of that system must have exact matching impedance characteristics. No matter how powerful the transmitter is, if there is an impedance mismatch, power will be wasted in the resistance produced by such a mismatch. In a social system, an example of this might be seen in formal banking procedures. An error in a bank account might provoke an angry customer to argue with the bank teller. But if the customer begins to shout as the tensions increase, the teller may find the situation out of character with required protocols and decorums of banking and shut the window, breaking off communications. No matter how upset the customer is, he or she can only communicate the problem effectively by discussing it in normal tones. The customer cannot force the bank to meet his or her demands, even though an error has been made. Other social requirements go along with the exchange of money in this transaction.

The larger social system, like the banking system, functions at a precise level of communication where excessive emotions dampen rather than enhance communications. So, as people mature, they begin to recognize the virtues of ordinary protocols and decorums that help facilitate their daily needs and transactions. And, as people rise in stature, they attend to finer and finer details of how they communicate with others in order to increasingly garner an advantage for themselves. In this respect, good communications, social integration, and morality combine as one function to further social productivity and harmony.

From the book *The Evolution of Ethics: Cybernetic Ethics*

See

Integration of Science & Ethics

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Visceral Morality