Complexity and Dissipation: Chaos and Information in the Technological Novel

by

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Abstract

In *White Noise* by Don DeLillo, *Gravity's Rainbow* by Thomas Pynchon, *Neuromancer* by William Gibson, and *Already Dead: A California Gothic* by Denis Johnson, scientific paradigms influence the conceptualization of time, of space, and of information. The feedback loop in complex systems dynamics represents the reiteration of processes over time, with each repetition describing a self-similar but non-identical pattern. This conceptualization of the feedback loop differs from that of cybernetics, in which the loop is identically reiterated on each repetition. The point at which one repetition ends and another begins constitutes a bifurcation point which, in some cases, takes the form of a singularity. In the novels under consideration, these patterns appear within the narrative structure as well as in descriptions of space, time, and behaviour, particularly in the patterns of consumption of the characters and in the proliferation of information--and misinformation--in the mass media. Repetitions within the narratives undermine the effects of linear plotting. Space appears as layered interiority and exteriority with an equivocal point, often a singularity, in the liminal region. In Pynchon's schema, time slows to infinity at the singularity and, at this singular point, the image attains a power and significance that transcends human cognition. Within the chaotic paradigm, the novel can be described as a dissipative structure in which a state of maximum entropy precedes a leap to a new level of organization.

The four novels under consideration represent social entropy in technological society, with the human subject defined in relation to the machine and to informational systems in which the human being constitutes a compilation of statistics or data. Social entropy has been defined as the encroachment of the machinic upon the organic, or as a convergence between or a suturation of the organic and the machinic in machine culture. Symptoms of social entropy include a proliferation of mass-produced consumer goods and a corresponding proliferation of human beings who resemble each other without any sense of uniqueness or individuality, who are conditioned by the mass media to belong to target market groups for the consumption of goods and information, or, more aptly, of misinformation.

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A Black Pearl:

The Novel as a Dissipative Structure

Contemporary American fiction includes novels that depict culture in a technological society and in which scientific paradigms underlie the fundamental structures of narrative. The effects of technology on culture include the figuration of fundamental constructs such as the social and the subjective; in working with machines, the position of the individual in contemporary society is increasingly interpreted in relation to the machine, a contrast with the earlier propensity to view the individual as working with/in/against nature, or as having a relationship with/to God. An ever-developing body of literary criticism is examining the relationship between literature and technology. More precisely, a recent convergence of disciplines that constitutes the area of study termed chaology has led to productive applications of chaos theory to literary works.

In chaology, a principle of universality has developed from observations of similar processes within many varied forms in nature and also in culture. Music, art, literature, and architecture provide forms that follow mathematical functions. The Fibonacci sequence, for example, has been known for centuries to apply in many different contexts, including the proportions of the human body and the design of Gothic cathedrals. The process of bifurcation provides another example of universality, and follows mathematical progressions that describe the structures of organic forms such as blood vessels, bronchial passages, and tree branches, as well as the narrative progression of events in a novel (or screenplay), and leads to more complex forms. A complementary process termed convergence follows a pattern of diminishing complexity and

corresponds to the progression of mathematical iterations in which successive solutions to an equation converge upon a single number. Similarly, the loss of complexity known as entropy has been compared to decadence in social systems and constitutes a disordering process in a system.

In the study of social entropy, Mark Seltzer has devoted several works to the examination of American technological society and the effects of mass production and machine-culture on the human subject. Seltzer's analyses utilize cybernetics and information theory and elucidate the effects of bureaucratic informational systems and record-keeping on the construction of the individual as a "statistical person" (*Bodies and Machines*). In Seltzer's theoretical framework, the suturation of the organic and the machinic is a form of social entropy in which human beings become machine-like and amoral, engage in repetitive or addictive behaviour, and lose their distinctiveness as unique individuals. In the case of the serial killer, the individual identifies with its profile or blends with the indistinct mass of humanity to become "the mass in person" (*Death and Life in America's Wound Culture*). In a sense, the contemporary social system mass-produces its citizens just as factories mass-produce cars and other consumer goods. In this schema, human beings relate to and identify with the machines they work with, whether in the mass-production of articles for consumption that takes place in factories or in the mass-dissemination of information in communications networks and the mass media.

In an examination of cultural consciousness and the construction of reality in a technological society the study of physics and cosmology has an impact that appears in works of literature, both in imagery and in narrative structure, which work together to present a complex view of technological

society. The work of Stephen Hawking describes time and space as a continuum in which the effects of one cannot be disengaged from the other. A similar situation exists in narrative, in which the progression of events and the description of the image rely one upon the other to convey meaning. Moreover, the perception of space-time as curvilinear rather than as a flat plane affects the construction of contemporary, scientifically-informed narratives in that they usually undermine the more traditional linear narrative form and represent curved surfaces or circular forms; their consequent repetitions of events correspond to the feedback loop of cybernetics.

In contrast to the traditional model of narrative represented in Freytag's Pyramid that resembles a line on a Cartesian grid, and to the postmodern model in which random, unpredictable events occur in the aleatory narrative or antinarrative, chaos theory allows a more complex and varied model of narrative to develop. Prigogine's model of a dissipative structure allows both for windows of deterministic processes and those of stochastic processes in a system. If the novel is considered as a system, periods of entropy in which events become disordered or unpredictable appear as well as periods in which events are more predictable and in which cause-and-effect plotting can occur. In Prigogine's model, a period of maximum entropy or disequilibrium is followed by a leap to a new level of complexity or to a new order or state. This model offers the best fit for some contemporary novels. Because some structure is required in order to convey meaning, a novel that resembles a dissipative structure has the ability to achieve great complexity without a consequent loss of meaning.

Such a novel, which might be termed a novel of complexity or a dissipative novel, tends to be modelled on some of the myriad forms in which these complex or chaotic patterns are found. For example, the cascade effect described by Benoit Mandelbrot can be found in narrative events and descriptions, particularly in *White Noise* when Jack Gladney confronts Willie Mink. Mandelbrot describes increasing disequilibrium in turbulent flow in the eddies appearing in water as it approaches a waterfall. The application of this model is helpful in explicating the underlying processes of a novel. A progression of narrative events which gives the illusion of an increase in speed and intensity can be compared to these eddies which proliferate in anticipation of the extreme disequilibrium at the base of the waterfall. Farther along the river, the turbulence has resolved somewhat into a laminar flow and a new organization has been achieved, somewhat like the resolution that may occur or be represented at the end of a narrative and which may also imply further repetitions of the preceding, or similar, events.

A pertinent cosmological model has been conceived by Katherine Hayles, who has compared *Gravity's Rainbow* to a black hole singularity because of frequent references in the text to the singularity or the zero ("Caught in the Web"). Pynchon makes use of the long history of mystical significance of the zero, which has represented infinity for millennia. He uses the zero to represent the excluded middle missing from binary logic because the zero combines both the creative and the destructive forces of nature found at the point of maximum entropy in a system, in Pynchon's example, the ground zero of a rocket strike with its apocalyptic destructive force, but which also has the significance of a conception because he states explicitly that the zero is feminine and is

penetrated by the masculine force of the rocket, hence implying a new beginning.

Another connection found in Hayles' model refers to the significance of gravity. The ordering principle in *Gravity's Rainbow* is the inescapable force of gravity, which affects the path of the rocket's trajectory and also exerts a dominating force in the black hole. In the black hole singularity, an overwhelming gravitational force warps the space-time continuum into a massive pocket from which light, and therefore information, cannot escape. The black hole represents informational entropy because of its impenetrable mystery. It represents a powerful force, dense with energy and compressed information, making it an apt metaphor for *Gravity's Rainbow*, a novel which has presented an awesome challenge to critics. Alternatively, a somewhat less entropic image but one that also suggests the dark, mysterious, yet aesthetic features of the novel, whether *Gravity's Rainbow* or a different novel of complexity and dissipation, is the black pearl. Unlike the black hole, the black pearl allows some light to escape, not enough, perhaps, to reveal all of its secrets, but enough to illuminate, in part, the many-layered depths to which its admirers are inescapably drawn.

The multi-layered construction of the pearl figures a key concept in chaotics, that of recursive symmetry. The mathematical iterations of complex forms in dynamic systems repeat patterns on different length scales, similar to *myse-en-abyme* forms like the Chinese box, and to the narrative embedding found in the frame tale. Pynchon uses the pearlescent refractive quality of a cloud to represent liminality in *Gravity's Rainbow*, in a description of the view from the Brocken in the Harz mountains shortly after the spring equinox. The

refractive quality of the pearl is due to layers of nacre, one upon the next, which reflect light in a prismatic spectrum of colour and provide the pearl's orient. The nacre contains pigment which absorbs some wavelengths and reflects others. Light is information, and the black pearl constitutes a form that absorbs more and emits less than others, making it an apt metaphor for a difficult novel. Layers which perfectly retain the original shape of the core with variations only in the scale length would be termed "self-similar." In chaology, "self-affine" forms retain the basic recognizable shape of an object, but the proportions of the form may vary as well as the scale length. The self-affinity of some chaotic forms can be compared to the baroque pearl, which achieves a less regular form than the perfect round pearl but may be considered to be more unique because of its irregularity.

This dissertation, however, is not a black pearl but a waterfall, with chapters that resemble eddies in the turbulent flow. Each chapter includes a discussion of *Gravity's Rainbow* by Thomas Pynchon, *White Noise* by Don DeLillo, *Neuromancer* by William Gibson, and *Already Dead: A California Gothic* by Denis Johnson, as well as occasional references to other relevant novels, especially *Americana* by DeLillo, which I consider a companion piece to *White Noise* because of its similar themes. Chapter 1, entitled "A History of Entropy: Determinism, Randomness, and Chaos," examines the body of work that has related science to literature and language and has represented the scientific concepts most helpful in the explication of complex novels. Chapter 2, "The Learning Machine: Cybernetics in the Articulation of Human Parts," strives to determine the cultural significance of the representations of individuals in machine culture found in the novels under scrutiny. Chapter 3, "Iteration and

Articulation: Complexity in the Narrative Body," examines the representation of time in the novels and their consequent narrative structures. Chapter 4, "Interiority, Singularity, and Frontier Space," deals with the representation of space in the texts, with the interplay of space and time as a continuum in the narratives, and with the importance of the image in a media-dominated society. Chapter 5, "Information Consumption: Misinformation, Feedback, and Consumer Desire," identifies the significance of information, or more aptly, misinformation, in technological consumer society as represented in depictions of the mass media and of characters influenced by the mass media. This organization, with each novel addressed thematically within each chapter, produces resonances that illustrate the commonality of scientific thought by the four novelists.

The novels under discussion were chosen for their use of scientific concepts, which is most often deliberate. These novels tend to demonize technology, portraying it almost as an entity in control of human destiny or as a god to be worshipped and to which sacrifices must be made. In *Gravity's Rainbow*, human life and culture is sacrificed to technology, which uses war as a means of requisitioning resources for its own development. In *White Noise*, technology is an agent of death that has grown beyond control and human comprehension. In *Already Dead: A California Gothic*, technology is one more site in which the demonic resides while humankind is devoured by technological/informational systems. In *Neuromancer*, artificial intelligences begin to take control of the technological/informational systems that humankind depends on and, in later episodes of the Cyberspace Trilogy, develop into a pantheon of voodoo gods in cyberspace. Other novels discussed herein add an

amplifying resonance to the figuration of technological systems in contemporary society.

As complex or dissipative novels, these texts represent patterns on various levels that tend to undermine linear progression. Gibson uses pastiche in order to present a stochastic assortment of images that disrupts the frenetic pace of narrative events. DeLillo uses the advertising image to develop what has been termed an antinarrative (Lentricchia). Pynchon uses imagery in a way that represents or implies the presence of the singularity, an infinite moment at the centre of time. Johnson manipulates the narrative consciousness in ways that distort the perception of time and space in an hallucinatory vortex. Looping structures in the progression of narrative events in these novels suggest a curvilinear model of time and space with infinite cosmological repetitions.

The patterns described in mathematical terms in the systems of nature and culture which are described in the study of chaotics appear also in the processes found in the dissipative novel or novel of complexity. The windows of determinism and stochasticity described by Prigogine appear in the texts in the patterning of narrative events and in the use of the image, in other words, in descriptions of time and space. Human beings as learning machines represent a convergent process of social entropy, or as Seltzer explains, a suturation of the organic and the machinic, as informational systems absorb individuals as if they were nothing more than a compilation of statistics. Technology in these novels represents an overpowering force beyond the informational capacity of human beings to comprehend or to control.

A History of Entropy:

Determinism, Randomness, and Chaos

The debate over determinism and randomness has engaged both literature and science for centuries. Eighteenth-century Newtonian dynamics reductively portrays a universe in which causes and effects are predictable and time is reversible. Conversely, nineteenth-century thermodynamics suggests a probabilistic paradigm to replace the deterministic Newtonian model. Thermodynamics introduces an element of uncertainty that creates unease in determinists, and demonstrates the possibility that time could be irreversible. However, complex systems chaotics of the twentieth century synthesizes these two perspectives in some respects, by demonstrating that there are windows of determinism and of randomness, periods when a system's behaviour is predetermined, and other less stable periods when a system becomes unpredictable and may reorganize at a higher level of complexity. In this model, reversibility is possible in some processes. The *corpus* examining the many connections, including the issues of randomness and determinism, between language and narrative on the one hand, and science and the philosophy of science on the other, provides a rich and productive discourse.

In Chapter 1, I will chart the chronological development of scientific paradigms that have contributed to this discourse. I will show how the progression of scientific thought leads from a totalizing view of the universe and its processes to multiple complementary views. This progression results in a loss of certainty, but yields a richness of possibility as well as an understanding that lends itself to the development of practical methods for solving problems.

In the following chapters, I will demonstrate how these developing scientific paradigms have produced the forms found in the novels under consideration.

In developing Newtonian dynamics, thermodynamics, Darwinism, cybernetics, information theory, field theory, and chaology, theorists attempted to master processes and to predict future events. The tendency to view these models as mutually exclusive diminishes with the revelation that each model makes a contribution to the cultural milieu. In examining these models in turn, their complementarity reveals itself; they are interesting, sometimes elegant, and above all, relevant for the understanding of literature. They represent a complexity of scientific models, a proliferation rather than a reduction; moreover, chaology synthesizes many of the useful components of earlier theories. These scientific paradigms have influenced culture in ways that are sometimes obvious, but in other instances assumed, taken for granted, subtly influencing diverse beliefs about the forces that impinge upon human lives. Each paradigm contributes a complex of meanings and associations surrounding its reigning metaphor, which often takes the form of a transformative technological icon.

Newton's classical dynamics of the eighteenth century used the clock or the *machina mundi* as its reigning metaphor. In addition, the Newtonian scientific-cultural paradigm assumed a watchmaker, a divine intelligence with absolute knowledge of the universe, despite the fact that scientific determinism conflicted with the existing concept of divine omnipotence. Stephen Hawking suggests that Newton could not accept some of the implications of his own theory; it proved that space was not absolute, and this conflicted with Newton's faith in an absolute God (28). The Newtonian paradigm is deterministic:

knowledge of initial conditions should allow perfect predictions. Classical dynamics works with gravitational force, the mass of objects, their velocity, acceleration, trajectories, and with differential equations that determine changes of velocity and positions of objects in space. Equations work as well in reverse, implying that time is bi-directional:

> The structure of these equations implies that if the velocities of all the points of a system are reversed, the system will go "backward in time." The system would retrace all the states it went through during the previous change. Dynamics defines as mathematically equivalent changes such as t->-t, time inversion, and v->-v, velocity reversal. What one dynamic change has achieved, another change, defined by velocity inversion, can undo, and in this way exactly restore the original conditions. (Prigogine and Stengers 61)

Time seemed to be reversible because Newton was working with bodies or particles in motion that could conceivably reverse their course in space. Later studies of chemical processes would lead to different conclusions about the directionality of time (Prigogine and Stengers 208).

Classical dynamics assumes linearity and causality. Although complete knowledge of initial conditions or perfect measurement of positions of objects within a system cannot be achieved, there was a tendency for Newtonians to ignore this uncertainty with a resulting reductiveness in conclusions (Wiener 8). Examples that did not support their theory were considered anomalies rather than evidence that the theory was incomplete. Nineteenth-century Darwinism presented a radical shift in the scientific-cultural paradigm because of its

suggestion that events might occur randomly, without direct causation. The prime example was random genetic mutation, which suggested that evolution was not part of a divine plan but rather a caprice of nature. The gradual acceptance of Darwinian theory was probably due to the popular perception of evolution as a progressive process, which conceptualization harmonized with the popular view of social progress that resulted from technological developments since the Enlightenment.

Thermodynamic theory was an innovation that occurred earlier than Darwinism, but it was received with less enthusiasm as a popular paradigm because of its pessimistic view of cosmology. In thermodynamic theory, energy is converted into unusable forms that result in the heat death of a system. Processes were demonstrated to be irreversible within this paradigm. The reigning metaphor of nineteenth-century thermodynamics was the steam engine and the theory, therefore, became associated with technology and also took on nihilistic associations; in the popular perception, it existed in contradiction to Darwinism and posed a threat to nature, which took on more romantic associations. Social theorists applied thermodynamic principles to the study of history and theorized that societies reach an apex and then become decadent to the point of dissolution. A sign of decadence, in the humanistic view, is the encroachment of the inanimate upon the animate, the appropriation of nature by technology, the proliferation of mass-produced goods rather than unique hand-made artifacts, and the increasing tendency for humans to become machine-like and amoral.

Bernd Klahn suggests, in "From Entropy to Chaos-Theories: Thermodynamic Models of Historical Evolution in the Novels of Thomas

Pynchon and Robert Coover," that narrative form is shaped by such cosmological theories:

> The positive ascent of the straight line is transformed into a descending slope, the mechanical world-machine decays into a thermodynamic combustion engine. The outcome of progress carries a negative sign, the pessimistic revaluation of history under the auspices of physics is called--entropy. (419)

The Uroborus representing the Greek myth of eternal return is replaced by a flat line; "the closed circular line of prehistory is cut and the curvature straightened out." The history of narrative and the history of cosmology share the element of time figured in geometric form, here charted on a graph with events a function of time and narrative tension, similar to the dramatic structure envisioned in Freytag's Pyramid. Entropy exhausts narrative tension; plots no longer resolve, but rather dissolve in random disarray within the aleatory novel.

Entropy in thermodynamic theory is a measure of heat energy that cannot be converted into work. According to the first law of thermodynamics, energy may change form but cannot be created or destroyed; the amount of energy within any system remains constant. The conversion of potential energy to kinetic energy and then to thermal energy is an irreversible process. Entropy is the tendency for a system to move from a state of organization and differentiation to one of sameness, formlessness, and predictability. The number of possibilities for order or discernable form in a system are less than the number of possibilities for chaotic or random formlessness; the likelihood for one of the possibilities for disorder to occur is more probable and therefore more predictable.

Norbert Wiener, an engineer at MIT during World War II, describes two philosophical possibilities of entropy. Augustinian entropy is a "random element" or a state of "organic incompleteness," a negative concept because it refers more to an absence of order than to a presence of evil or disorder. Conversely, Manichean entropy is perceived as a positive malicious element, an evil intelligence that deliberately thwarts attempts to resist disorder. Entropy is analogous to the Freudian concept of thanatos, the death instinct, in that it represents the destructive forces of the cosmos. A Manichean devil will attempt any means to win and will change its strategy when detected, like an uncanny presence. The Augustinian devil, however, is "a measure of our own weakness" (Wiener 34-5), perhaps the human inability to comprehend the whole of complex design.

According to thermodynamic theory, entropy is the outcome or end point of any system. When energy has been converted into an unusable form, the system reaches a state of equilibrium or maximum entropy. In a system in isolation, materials and energy cannot be brought in from outside the system boundary, and the engine grinds to a halt. Most theorists distinguish between open and closed systems (Bateson 39). The closed system is mainly a theoretical model in physical chemistry, isolated from its environment. An open system has permeable boundaries that allow materials and energy to be brought in. Biological organisms meet this definition of openness and can be strongly resistant to entropy; thus, pockets of order exist in which increasing complexity is possible (Wiener 32). This refinement mends the rift between thermodynamics and Darwinism, allowing for the increasing differentiation between species and their specialization that occurs in evolution.

An association exists between thermodynamic theory and information technology in that the process of entropy proved to be a useful formulation in communications theory. Nicholas Ruddick suggests that "information may be viewed as a third property of matter. Information is as fundamental to the cosmos as matter and energy even though, unlike them, it is not subject to the laws of conservation" (84). Claude Shannon, an engineer for Bell Laboratories, applied the principles of thermodynamics to information theory in the 1940s and developed the concept that information is "negentropy," an anti-entropic principle. Shannon distinguished between information and noise in communications channels. Noise, most simply, is static on a communications channel; yet the concept also includes issues of context. For example, ghost voices on the telephone line would be classed as part of the static interfering with one's conversation, but at the same time the ghost voices are engaging in their own conversation in which context one's conversation is deemed to be noise.

Because noise is an unavoidable part of communication, redundancy is necessary to reduce the probability of error; however, redundancy also reduces the unexpectedness of a message. A predictable message resolves less uncertainty in the receiver, conveys less information, and therefore has less value informationally. The ideal message has only the necessary amount of redundancy and as much unpredictability as possible for a particular receiver to decode it within a particular context. Clearly, there are many variables to be considered in evaluating the effectiveness of any message. In computer binary code, a message consists of ones and zeros, binary digits known as bits. With only two possibilities in this code, a bit resolves all uncertainty.

Redundancy takes more than one form in the English language. Each letter of the alphabet has its own probability of occurring in any message sequence. For example, the letter "e" occurs most frequently, three times more often than it would randomly, without the rules of spelling (Campbell 69). The other form of redundancy in language is context dependent redundancy; for example, after the letter "q" the letter "u" has a higher probability of appearing than it would after any other letter. Without redundancy, complexity would be impossible. Studies by mathematicians and engineers done on biological and artificial intelligence systems indicate that redundancy allows a system to continue despite failure or malfunction because of this self-healing aspect of the code (Campbell 73).

Shannon's Second Theorem proposes that the universality of information is a property of life, and that an informational code may be made reliable, free from error, even under noisy conditions. A cleverly coded message can ensure order within chaos. This concept, applied to the DNA code, could explain the complexity and diversification of species, provided the code includes a kind of metalanguage that would allow for multiple levels of interpretation, similar to the deep structures of human language. Mathematical programs designed to test the validity of the synthetic theory of Darwinian evolution (that asserts that random genetic mutation is responsible for the diversity of species) have shown that a highly-evolved complex species could not develop purely as the result of chance mutation. Jeremy Campbell asserts that evolution by chance mutation is no more likely than typing an entire library of books simply by randomly hitting keys on a typewriter (98). If the DNA code contains rules about how to

structure information, a metacode of some kind, it could explain the elegance of increasing biological diversity.

Richard Dawkins, a zoologist at Oxford University, subscribes to the synthetic view. In his first book, *The Selfish Gene*, he describes his concept of the "meme," a contagious information pattern that infects a culture in the same way that a virus infects an organism. A meme may be a song, an aphorism, or a cultural value, for example. Dawkins believes that random genetic mutation is responsible for evolution, yet his concept of the meme suggests that DNA and language may have structural similarities.

Dawkins distinguishes between the terms "design" and "designoid." Design in nature is attributed to a divine intelligence, as in the natural theology of the nineteenth century that presumed moral lessons should be learned through the observation of nature. Design is found in works of art also, an index to the individual creative intelligence of the artist. In contrast, Dawkins postulates that

> Designoid objects are living bodies and their products. Designoid objects *look* designed, so much so that some people--probably, alas, most people--think that they *are* designed. These people are wrong. But they are right in their conviction that designoid objects cannot be the result of chance. Designoid objects are not accidental. They have in fact been shaped by a magnificently non-random process which creates an almost perfect illusion of design. (*Climbing Mount Improbable* 6)

Dawkins believes that Darwinian natural selection allows species to diversify and evolve into more complex organisms by chance genetic mutation. The

majority of mutations, however, would not be advantageous. Slight mutations that give an individual an edge over its competitors will be selected, constituting the non-random aspect of the process, for a kind of feedback loop that enhances the survival of an individual with a beneficial mutation. In this respect, evolution resembles a dissipative structure, in that there are windows of randomness and determinism that ultimately produce differentiation and complexity.

Both in biological systems and in mechanical or electronic systems the feedback loop operates as a repetitive iterative process. The reigning metaphor of the twentieth century that replaces the world-machine and the steam engine of previous centuries figures the world as a computer in which continuous information processing takes place. Norbert Wiener coined the term "cybernetics," the Greek word for steersman, to describe the control mechanism or feedback system of learning machines, to which category both animals and computer systems belong. The AA, Wiener's anti-aircraft predictor, could intercept a fighter pilot's plane based on information recorded from the pilot's past evasive manoeuvers by using an algorithm to compute the probability of a particular flightpath (Galison 237). Weiner's experiment demonstrated that human beings are predictable and even machine-like in their habitual behaviours, and that their repetitive thought patterns and physical movements may be thought of as feedback loops.

In *The Human Use of Human Beings*, Wiener states that structure determines function and limits performance both in machines and in living organisms. His chosen example is the ant because of its small brain and its inability to learn; the ant behaves according to instinct (with an implicit analogy

between instinct and programming). Wiener's theory led to the application of these concepts in many areas of science, including behaviorism and its mechanistic view of the human being, like other animals, as a feedback mechanism in the stimulus-response model of bio-psychology. This perspective, of course, is opposed by humanists who cling to the ideal of self-will in the human condition and resist the image of the Myrmidon, the ruthless but obedient ant-soldier of Greek mythology. Cybernetic fiction often hinges on this conflict between the romantic humanist ideal of individualism and free will, and the naturalist portrayal of fictional characters who live by instinct and habit, incapable of understanding the forces that impinge upon their lives and happiness.

David Porush, an authority on the cybernetic novel, suggests that

> Cybernetics was partially born from the desire to answer the uncertainties imported into science by quantum mechanics, to reclaim certainty by showing that how the human mind itself perceives an event and communicates its observations could be described deterministically as a cybernetic mechanism or form of computer. If everything is treated as information, and if information is figured in an equation, and if those equations can be manipulated systematically, then science, it was hoped, will have resubsumed a demonic instrument that has imported uncertainty into the center of scientific realism--the human mind--under a system of positive mathematics. The success of the project has given us computers, expert systems, fascinating new models of the mind and the brain, and a powerful post-Cartesian metaphor:

> that the human mind in the behaviors it holds most dear--speaking, thinking, observing--is a machine. ("Fiction in a Cybernetic Age" 224)

But like all deterministic systems of thought, there is a reductiveness in the analogy because the human mind operates in a fundamentally different way from that of the computer. The human mind is capable of interpreting information as having simultaneously different levels of meaning. The computer, by contrast, remains a notoriously literal thinker. However, the future holds the possibility of a convergence between these two forms of intelligence, the organic and the machinic.

The reigning metaphor of the twenty-first century could, predictably, be the cyborg or cybernetic organism constructed of biological and mechanical/electronic parts. Scientists have succeeded in growing a neuron over an electrode, demonstrating the ability of manmade and biological elements to function together. Whether the cybernetic novel typically presents cyborg technology (implants or "wetware") as an object of fear or as a fetish object is an interesting issue; most likely the "techno-fetish" is a highly-charged combination of fear and fascination.

Mark Seltzer discusses the problem of individuality in mass/machine culture, and the confusion surrounding self-identity when technology encroaches upon the body either by becoming an extension of the body, or by penetrating the physical boundary:

> This confused thinking in terms of self-distance and boundary-maintenance is precisely, we have seen, the fraught logic of addiction and addictive violence: the endless battles between self

> and world, nature and artifice, the real and its substitutes, body and machine, mind and body that render insupportable the experience of the permeability of the self, flowing from the outside in. (139)

These issues are never clear-cut, but contain inconsistencies and contradictions. The problem of self-definition becomes arduous in a cybernetic society where the individual is a "statistical person" as Seltzer describes it, a number in the government databank, and more so when the body becomes part machine. For some, this encroachment of the technological upon the biological is a sign of social entropy; as individuals become machine-like and amoral, the value of human relationships in society suffers. These uncertainties of selfhood and human identity seem all the more ironic when one considers that the science of cybernetics was developed to eliminate uncertainty and subjectivity from science.

Significantly, Porush proposes that Wiener's concept of Augustinian entropy actually refers to Heisenbergian physics. The Heisenberg Uncertainty Relation demonstrated the mythical status of scientific objectivity: it is impossible to separate subject and object, the observer and the system, in order to observe the system without interference by the observer. Heisenberg's example was a particle being disturbed by the light from the observer's microscope. Uncertainty regarding the momentum and position of the particle could not be eliminated because whatever technique was employed, one or the other of the factors could not be accurately determined.

An additional assault on the myths of scientific objectivity and absolute knowledge of reality was a paper published by Kurt Gödel, "Formally

Undecidable Propositions in *Principia Mathematica* and Related Systems," which demonstrated that any theory contains inconsistencies or statements that cannot be proven either true or false. In *Gödel, Escher, Bach* (21), Douglas Hofstadter uses this example of an undecidable proposition:

> The following statement is true.
>
> The preceding statement is false.

Hofstadter refers to this logical paradox as a "strange loop," an infinite cycle of undecidability. The Halting Problem is an example of a strange loop in computer language. If given an unresolvable problem, a computer will continue infinitely processing data without ever coming to a solution. According to Katherine Hayles,

> Certain limitations in linear analysis are inescapable because of the problem of self-reference. It is because the tools for analysis are inseparable from what one wants to analyze that Strange Loops appear. In these examples, problems that cannot be solved through logical analyses appear as a result of considering both the tools for analysis, and the object to be analyzed, as part of the same "field." They illustrate one way in which the emergence of a field approach has revealed limits to classical logic. (*The Cosmic Web* 36)

Hayles goes on to apply the same problematic to language: language mediates the boundary between subject and object. The positivist project to eliminate ambiguity from scientific language failed; the conclusion was reached that observation itself could not be free from the influence of theory. What is observed is at least partly the product of the observer's expectation, what the

observer has been trained to see, and partly the product of the hypothesis. Observer and observed exist within the same field, just as reader and text both exist within the language field, and therefore all interpretations are fundamentally subjective, both in science and in literature. This position is a departure from Cartesian dualism that assumed an impartial observer separate from the object of observation.

Field theory accounts for the fact that although theories may be mutually exclusive, they may still be in use if they are functionally accurate and efficient for certain purposes. But no theory is complete or totally accurate; lacunae exist in every theory. Niels Bohr suggests that mutually exclusive theories may be complementary in that they describe different aspects of reality. Different descriptions of reality originate from different viewpoints, points that make the subject-object split at a different point. The limitations of language contribute to the inability of scientists to synthesize a complete field theory that could utilize the most useful contributions from theorists such as Newton and Einstein (Hayles 53);

> Einstein's general theory of relativity seems to govern the large-scale structure of the universe. It is what is called a classical theory; that is, it does not take account of the uncertainty principle of quantum mechanics, as it should for consistency with other theories. The reason that this does not lead to any discrepancy with observation is that all the gravitational fields that we normally experience are very weak. . . . We do not yet have a complete consistent theory that unifies general relativity and quantum

> mechanics, but we do know a number of the features it should have. (Hawking 81)

Physicists continue to search for "grand unified theories" that take into account all that is known about the universe, but if Bohr is correct, there will always be inconsistencies and undecidable questions. Prigogine suggests that "the wealth of reality, which overflows any single language, any single logical structure," cannot be reduced to a single "divine point of view" (225).

Complementarity presents a cosmic view that challenges human comprehension; similarly, the concept of the singularity has awed and inspired researchers in physics and in literature. Stephen Hawking is an authority on black holes, a type of singularity. He considers the black hole in relation to the second law of thermodynamics, and concludes that the event horizon of a singularity is an equivalent of entropy. A black hole begins as a massive star that has burned up enough of its gases to destabilize the oppositional forces of gravity and repulsion, resulting in gravitational collapse to infinite density. The strong gravitational field of the collapsed star is exerted on light emitted from the star and bends the light inward so that it can no longer escape from the region of the star known as the event horizon, the star's boundary. No information can leave the radius of the event horizon and the gravitational field affecting the light also affects time, slowing time to infinity. The critical radius is termed "the point of no return," because the tremendous gravitational field creates a vortex which draws all matter within its field into itself. The work of Hawking and Penrose illustrated that,

> According to general relativity, there must be a singularity of infinite density and space-time curvature within a black hole. This is rather

> like the big bang at the beginning of time, only it would be an end of time for the collapsing body. . . . At this singularity the laws of science and our ability to predict the future would break down. (Hawking 114-5)

Information lost within a black hole becomes irretrievable. A biological form crossing the boundary would be stretched, fragmented, and then crushed by the gravitational field.

The black hole singularity represents the unknowable because infinity is a shadowy concept for human cognition; according to Hayles, "The singularity thus represents a point where the behaviour of the function ceases to be mathematically expressible, except in a purely formal way. Metaphorically, it is the point at which the function escapes from the delta increments of rational analysis into the unknown" (*Web* 192). The singularity represents the point of maximum entropy, the point of greatest instability in a system, from which it might leap to a new order of existence. The singularity is a discontinuous function which makes it a type of bifurcation point. A small perturbation at this point, a chance occurrence perhaps, might trigger this transformation.

James Gleick, in writing about chaos theory, describes the suspicion with which challenging new ideas are viewed in traditional disciplines. Gleick describes the problems confronted by mathematician Benoit Mandelbrot when he used both mathematics and geometry to describe his new field, fractal geometry. Part of the problem was the suspicion with which interdisciplinarity was regarded, but in addition, the problems under study were ones that had been viewed as anomalous. Mandelbrot investigated small disturbances that would normally be considered error or noise (Gleick 90-6). One example is the

work Mandelbrot did with over a hundred years of cotton prices. He analysed fluctuations on a daily basis; economists had always regarded these small, daily fluctuations as meaningless noise, but Mandelbrot found that there was a symmetry between the daily fluctuations and monthly or yearly changes. The pattern had similarities on all levels, but the scale was variable.

Working for IBM, Mandelbrot discovered that the noise on telephone lines that interfered with communications between computers, when viewed in the correct scale, matched the pattern of the Cantor set described by a nineteenth-century mathematician:

> To make a Cantor set, you start with the interval of numbers from zero to one, represented by a line segment. Then you remove the middle third. That leaves two segments, and you remove the middle third of each (from one-ninth to two-ninths and from seven-ninths to eight-ninths). That leaves four segments, and you remove the middle third of each--and so on to infinity. What remains? A strange "dust" of points, arranged in clusters, infinitely many yet infinitely sparse. Mandelbrot was thinking of transmission errors as a Cantor set arranged in time. (Gleick 92)

This discovery eliminated the search for an explanation of noise due to local events. The noise was a global phenomenon that could be dealt with through redundancy in the code rather than by increasing the strength of the signal as engineers had always assumed (92).

Mandelbrot also confronted the problem of coastline length. The length of a coastline depends upon the scale used to measure it:

> When a bay or peninsula noticed on a map scaled to 1/100,000 is reexamined on a map at 1/10,000, subbays and subpeninsulas become visible. On a 1/1,000 scale map, sub-subbays and sub-subpeninsulas appear, and so forth. Each adds to the measured length. (Mandelbrot 26)

This presents the logical paradox of an infinite line within a finite space. The perceived length depends upon the relation of the observer to the coastline; to measure the coastline using photographs from a satellite or from an airplane would produce different results, as would measurements taken from a photo taken through a microscope. Any object viewed in this way appears to have a different topography from each perspective. Gleick describes the Humpty Dumpty Effect, which illustrates why broken china cannot be effectively mended (106). The microscopic surfaces of the fragmented pieces no longer match, on a fine scale, after being broken and cannot be fitted together perfectly, despite the fact that they appear to fit on a large scale. This effect has implications for engineers studying surface contact, for example, the tread design for a pair of jogging shoes intended for use on cement, gravel, or snow.

In a similar application of scaling, Mandelbrot studied the Nile River looking for patterns in flooding over time, and described two effects that were also prevalent in economics (Gleick 94). The Noah Effect is discontinuous, a sudden large change: heavy flooding could follow a period of extreme drought. The Joseph Effect is persistent, as when drought continues unabated for decades or even centuries. Finding these patterns in diverse phenomena indicates a global prevalence of changes on different scale lengths that cannot be attributed to simple cause and effect.

Climate and weather conditions fascinated and puzzled Edward Lorenz, to whom the formulation of the Butterfly Effect is attributed; the Butterfly Effect is also known as "sensitive dependence on initial conditions." Hayles considers this concept an insight into the relation between determinism and unpredictability: "In the geometry of chaos, small scales interlock with large in such a way that minute changes in initial conditions can lead to large changes overall. Small perturbations cascade upward through a system in a manner that is determined but not predictable" (*Chaos and Order* 215). Lorenz's observation resulted from the study of weather; he postulated that a perturbation as small as the fluttering of a butterfly's wing is not as insignificant as it seems--it could result in a violent storm half way around the world.

Mandelbrot also uses the term "cascade" in describing self-similarity, referring to recurring patterns on different length scales. He states that, "In a rough approximation, the small and large details of coastlines are geometrically identical except for scale" (34). He compared the effect to that of fireworks, a downward cascade in which each succeeding stage exhibits a smaller-scaled version of the previous stage. The effect is not limited to coastlines, however; Mandelbrot investigated biological structures and found that tree-like branching fractals exist in the bodies of animals in the form of blood vessels, bronchial structures, and dendrites. Mandelbrot describes a large number of bifurcations in the lungs branching over fifteen times and usually with "striking regularity" (157). Each scaled-down iteration of bronchial branching would have the same mathematical function, but a different number as its starting point.

Lorenz is also known for the Lorenz attractor or "strange attractor," which bears a relation to Mandelbrot's fractals. Unlike other attractors, the strange

attractor did not reach a steady state like the fixed point attractor, nor did it repeat itself continuously like a limit cycle (Gleick 134). The fixed point attractor is subject to friction which dissipates the system's energy causing the orbit to spiral inward. A frictionless pendulum forms a loop in phase space, repeating the same identical pattern. The Lorenz attractor, however, never repeats the same exact path in phase space, but forms the shape of an owl's mask similar to the repetition in different scales seen in fractals.

Another, similar form is turbulent flow, which occurs when a liquid goes through a phase transition from smooth flow to turbulence. Ripples begin to appear and then eddies and smaller eddies in a cascade effect, which is "strikingly fractal" in its structure, according to Mandelbrot (98). Prigogine seems to agree, stating that

> For a long time turbulence was identified with disorder or noise. Today we know that this is not the case. Indeed, while turbulent motion appears as irregular or chaotic on the macroscopic scale, it is, on the contrary, highly organized on the miscroscopic scale. The multiple space and time scales involved in turbulence correspond to the coherent behaviour of millions and millions of molecules. Viewed in this way, the transition from laminar flow to turbulence is a process of self-organization. Part of the energy of the system, which in laminar flow was in the thermal motion of the molecules, is being transferred to macroscopic organized motion. (141-2)

The formation of eddies in a stream approaching a waterfall may not appear as orderly as the branching of arteries into arterioles, but similar bifurcating

patterns are detected. Prigogine suggests that communication exists here, an exchange of information between molecules that allows the system to leap to a higher level of organization.

The cascade effect of branching found in trees and treelike structures is known as bifurcation, where the structure breaks into two sections. This term can also be applied to evolutionary theory, when a species, for example, might divide into two types, such as *canis lupus* and *canis familiaris*. It also applies when a population of animals alternates between two levels as a result of environmental conditions, including a high birthrate and survival rate during favorable conditions and a drop in the population during famine or high predation. Period doubling occurs when there is a regular increase in numbers over time; a mathematical function allows predictability in systems that operate in this way, and there are many. Complex systems will show phases of regular period doubling followed by a period of chaotic behaviour (Gleick 73). Prigogine postulates that in far from equilibrium conditions, a system displays spontaneous self-organization (160). The system will resume predictable behaviour once the chaotic period has passed. At the point of bifurcation, a random element appears; there is a choice-point that determines which path the system will take. Prigogine asks why the double helix of DNA proteins spirals to the right, and suggests that it may have occurred by chance at a bifurcation point, or that an external field, such as gravitation, may have influenced pattern selection (163).

Right and left, clockwise and counterclockwise, have the same universal recurrence in nature as in water taps, jar lids, and screws; in freeing a tomato from its vine or a tick from its host, a counterclockwise turn is required.

Concepts such as fractal geometry and period doubling have wide application in natural systems as well as other types, such as economic and social systems. The concept of universality in chaotics has been validated by the interdisciplinary use of principles that began with mathematics, geometry, and physics. James Kirk asserts that

> The description of bifurcation is part of the larger investigation of transition phenomena. Although there are certainly elements specific to each kind of event, the presence of similar qualitative structures indicates a unity among diverse systems which was not previously recognized. Prigogine's language considerably narrows the gulf that has traditionally divided "living" from "nonliving" systems. Beyond this, he suggests intellectual tools to deal with problems as seemingly disparate as embryonic development and traffic flow. (53)

Here, entropy is perceived as a creative rather than as a destructive force once it is understood. Dissipative structures produce entropy, but the entropic elements lead to greater complexity and self-organization. The random element is a choice point, more accurately termed "stochastic," or unpredictable.

These processes have only been observable since the sophistication of computer analysis, which suggests that the abstract principles structuring the universe at multiple levels are beyond the limit of naked human cognition. The computer acts as a kind of prosthetic device for the human brain, allowing the exploration of the relationships between a larger number of variables than can be held in the mind simultaneously, and the visualization of patterns in multiple dimensions on the computer screen.

Suggestions of fractal concepts can, however, be found in ancient designs; John Barth compares fractal sets to the Arabesque pattern in Oriental carpets and to the structure of the frame tale (317). Narrative embedding or framing bears a qualitative similarity to video feedback, a phenomenon that occurs when two video cameras are placed facing each other (Peitgen 20). The image that results represents the opposite camera on decreasing length scales in a *mise en abyme* design. Similarly, Kirk asserts that, "The gap which has separated science and the humanities begins to dissolve when we realize that the same processes which create galaxies are at work, internally, in the invention of novels" (62). The fact that fractals make such intuitive and artistic sense might suggest the question whether these patterns exist everywhere or whether they might be an artifact of the human brain as it processes information. This is a lacuna that only a technology for rendering the world through the senses of another (perhaps otherworldly or even artificial) intelligent species could illuminate, and even then, to escape the filter of human information processing could well be impossible. The sensorium, thoughts, and feelings of the 'other' may be forever unknowable, or at least subject to uncertainty.

Since the time of Newton, the pendulum has swung from a position of determinism, to one of randomness in thermodynamics, and again to a position in between, where a greater understanding of physical processes in their complexity helps theorists to comprehend the processes of artistic design. The issues that engage the study of cosmology are also of concern in literature: time, space, and epistemology frame the scientific experiment as well as the literary narrative. Prigogine's discoveries suggest that the time to take an

extreme position over the question of determinism and randomness has passed with Newtonian absolutist doctrine, and that the ability to find the order within chaos is limited only by the human ability to perceive and process information.

Learning Machines:

Cybernetics in the Articulation of Human Parts

Neuromancer, *White Noise*, *Gravity's Rainbow*, and *Already Dead* have in common the portrayal of characters in cybernetic terms. In the Newtonian paradigm, human beings stand in relation to God, but in the cybernetic paradigm it is as if humans exist in relation to the machine, created in its image out of parts assembled to become the articulated whole of a human being. Humans are consumed or absorbed by the technology for production, like cogs in the social machinery, with a concurrent devaluation or commodification of the organic. Cybernetics figures animals, including humans, as learning machines in a stimulus-response paradigm that suggests humans, as instinctive animals, are predictable. Weiner's AA-predictor successfully utilized the assumption that, having recorded past behaviour, future behaviour in a given set of circumstances will be predictable more than half of the time.

In *Neuromancer*, characters are literally cybernetic, in that they have mechanical or electronic components or prostheses, but their behaviour is revealed to be stochastic. In *White Noise*, less literally, characters think of themselves and others in terms of technological paradigms and evaluate their sense of well being in relation to technological/informational systems. In *Gravity's Rainbow*, the figuration of organic entities in terms of cybernetic principles is represented as a dehumanizing process or paradigm in an increasingly informational economy. In *Already Dead*, technology and informational systems in mass culture follow chaotic principles, and characters are formed as self-similar parts of this whole through positive feedback. An

examination of the characters in the four novels suggests the ways in which the human is configured in a technological society.

Seltzer asserts that social entropy in techno-culture takes the form of a miscegenation of the organic and the machinic. Moreover, the statistical person is configured through bureaucratic informational systems to the point at which the difference between organic bodies and bodies of information becomes indistinguishable. In the four novels under consideration, characters seek to establish their identities as organic, machinic, or informational persons. In *Neuromancer*, some characters have willingly incorporated machinic or cybernetic parts into their bodies. Also, Henry Case longs to become the sum total of his data as an informational entity in cyberspace when he leaves his body and experiences brain death. In *Already Dead*, male characters tend to identify with machines that they collect, particularly vehicles and weapons. In *Gravity's Rainbow*, Tyrone Slothrop has been cybernetically conditioned by the System and exhibits an uncanny affinity with the *Schwartzgerät*, the black box or cybernetic guidance system in the nose cone of the V-2 rocket. In *White Noise*, Jack Gladney fears his inevitable informational becoming and dreads the similarity between his person and the coded and scanned items found on the supermarket shelves.

In this chapter, I will examine the ways in which characters in the novels under consideration are figured as cybernetic organisms or statistical persons. As learning machines, the characters are capable of being conditioned by society much in the way that a computer's software can be configured. My intention is to demonstrate how human identity is formed in relation to informational systems and machines and how the knowledge of this formation

can affect behaviour. Some characters comply willingly in their status as statistical persons or cogs in the social machinery, while others resist identification with their personality profiles and target market groups.

In *Neuromancer*, Case muses about the nature of the other characters in the novel. He wonders about depth of personality, whether others are as they appear on the surface, or whether they suppress aspects of themselves in order to accomplish their work. The novel essentially tries to determine whether the sum of the parts is less than the whole of human personality, or whether, like the artificial intelligences Wintermute and Neuromancer, people are simply the total of the various aspects that constitute their minds. If this were the case, a personality should be programmable; the only question would be how many variables are required to make up a fully human character. The artificial intelligences, Wintermute and Neuromancer, try to understand and predict human behaviour through the use of the personality profile, and they come to the conclusion that humans are unpredictable. The human characters frequently do things that are, probabilistically, highly unlikely and, frequently for the AIs, inconvenient.

The opening passages of *Neuromancer* find Case, the protagonist, as 'damaged goods,' like a piece of machinery or a commodity that is no longer 'state of the art.' He is a "fence," a middle-man in the black market, selling stolen software and illegal substances. In the past, Case was the most skilled computer hacker in the Sprawl; however, having stolen information from his employers, he has been disciplined with an injection of a neurotoxin (a Russian mycotoxin developed for biological warfare in Europe) that produces subtle

damage to his reflexes, rendering him incapable of his former feats at the keyboard. This fate is his worst torture--he still dreams of cyberspace.

After having spent the money he gained from the sale of his employers' stolen information on black-market clinics in attempts to have his reflexes restored, Case learns to use what is left of his reflexes in the black market "dance" he calls "the biz." But as time goes on, he becomes increasingly negligent in his business dealings, taking chances that could result in his death. Case has a death wish:

> Case knew that at some point he'd started to play a game with himself, a very ancient one that has no name, a final solitaire. He no longer carried a weapon, no longer took the basic precautions. He ran the fastest, loosest deals on the street, and he had a reputation for being able to get whatever you wanted. A part of him knew that the arc of his self-destruction was glaringly obvious to his customers, who grew steadily fewer, but that same part of him basked in the knowledge that it was only a matter of time. (7)

Implicit in this passage is the assumption that a human being is constituted of parts, for example, the part that functions as the death instinct; the death instinct is defined as the drive of the organic to become inorganic, or in this case, machinic or cybernetic (Seltzer 61). Case's superego, and his affect, are repressed, at least to some degree. In the interest of survival, Case's need for moral qualms about his livelihood is limited. Case numbs his feelings with drugs. He has killed several people, including women, over small sums of money. He had a girlfriend, Linda Lee, for whose drug addiction he is responsible. Case is, at the beginning of the narrative, human waste; many of

his parts do not function well. Case's life is an entropic downward spiral of negative feedback, or perhaps his life resembles the final descent of a rocket after the fuel has been consumed, the "arc" following *brennschluss*. As the narrative progresses, Case is rearticulated; he regains his lost parts, just as he is reintegrated into society as a functioning part thereof.

Early in the narrative, what is described as "The Fall" has come after Case has stolen information; he has been exiled from the Eden of cyberspace:

> For Case, who'd lived for the bodiless exultation of cyberspace, it was the Fall. In the bars he'd frequented as a cowboy hotshot, the elite stance involved a certain relaxed contempt for the flesh. The body was meat. Case fell into the prison of his own flesh. (6)

The Cartesian mind/body split is carried forward into the information age as a devaluation of the corporeal in an information economy. Case is alienated from himself; he resents the limitations of the body and wants to *be* his data, information without matter. This position corresponds in social values with the Manichean belief that the divine soul is trapped within the earthly confines of the physical body, "symbolized by darkness and night. The soul's desire to seek the light is, however, checked by the jealousy of Venus, who wants to keep the soul locked up in dark matter. To be alive in the body is thus an absolute woe to the Manichaean, whereas death into a redeeming light is an absolute good" (Weisenberger 301). In the world of the elitist hacker, the cybernetic aspect of the mind, containing pure information, is valorized over the organic information of the body. Deprived of the pure informational freedom of cyberspace, Case continues to spurn the pleasures of the flesh but indulges in substances that allow him to forget his body. These substances are man-made chemicals, a

kind of drug technology substituting for information technology. For those who value the body, Case emblematizes entropy, an avoidance of the important and valued physical component that connects individuals in society, representing the connectedness of humanity, of individuals to each other and to nature.

Case engages in a kind of asceticism without suffering, a life without physical luxuries; just as the Manichaeans considered the embodied soul a slave to Venus, Case associates the body with eros and thanatos. The part of Case that yearns for death "most hated the thought of Linda Lee," his former lover (8). Her eyes, with their startled innocence, remind Case of the eyes of an animal "pinned in the headlights of an oncoming vehicle," a helpless victim of love and death (8). She also reminds him of a mantis:

> It took a month for the gestalt of drugs and tension he moved through to turn those perpetually startled eyes into wells of reflexive need. He'd watched her personality fragment, calving like an iceberg, splinters drifting away, and finally he'd seen the raw need, the hungry armature of addiction. He'd watched her track the next hit with a concentration that reminded him of the mantises they sold in stalls along Shiga. (8)

The mantis is an emblem of love and death due to its mating habits; Seltzer describes it as "the surreal insect figure of 'sex-death'" (52). Mantis love requires for its consummation that the female devour the head of her mate (illustrating the close semantic relation between consummation and consumption), because the male mantis cannot ejaculate until the spinal cord is severed. Only the headless body can reproduce, and no doubt Case identifies with the male mantis in his relationship with Linda Lee, whom he met while dealing in the

black market after 'the Fall.' In cyberspace, like Eden, reproduction is not necessary; the replication of information is the informational equivalent of genetic transmission. Sensing Case's uneasy relationship with the corporeal, Case's enemy Riviera, who is able to project mental holograms, attempts to torment Case with the illusion of a sperm cell swimming in his drink and then with "the briefest flash of a black rose, its petals sheened like leather, the black stem thorned with bright chrome," a figuration of Case's current lover and bodyguard, Molly, who dresses in black leather. But, by this time, Case's reflexes have been repaired and restored and he is no longer a headless body; he is once again a state-of-the-art learning machine.

The fragmentation of human components described in Linda Lee's addiction and in Case's damaged nervous system is iterated in the form of the fragmented body in Riviera's cabaret, in which love and death are played out between Riviera and Molly, or rather between holographic projections of these two characters which are created by Riviera. Riviera articulates Molly part by part, beginning with her hands; she in turn disarticulates Riviera with her scalpel-blade fingertips in an "inverted symmetry" (141). This performance figures Case's life story and his response demonstrates his fear of castration, for the erotic-grotesque cabaret makes Case ill and he rushes from the room. The loss of Case's skills represented a form of castration (more significant to Case than the more obvious form, the loss of genitals), because castration fear is more generally a fear of bodily harm representing the loss of agency or of social dominance. Similarly, articulation has to do with the assemblage of jointed parts of the body, and with the iteration of coherent parts of speech, also important to social dominance or empowerment.

In *Neuromancer*, the linkage of body and voice is significant. The synthetic computerized voices of Wintermute, Dixie, and the *cloisonné* head are disembodied and dead, lacking the warmth, the life, and the depth of resonance that come from embodiment, yet representing a new order of power in machine culture. The body is a site of vulnerability for Case, a component through which he can be controlled. The artificial intelligence entity, Neuromancer, utilizes Case's instincts and emotions by taking advantage of Case's feelings for Linda Lee. He projects her image into various cybernetically controlled structures at crucial points during Case's mission:

> While he watched the loser's zodiac of Freeside, the nightclub constellations of the hologram sky, shift, sliding fluid down the axis of darkness, to swarm like live things at the dead center of reality. Until they had arranged themselves, individually and in their hundreds, to form a vast simple portrait, stippled the ultimate monochrome, stars against night sky. Face of Miss Linda Lee. (155)

The AI, viewing humans as machinelike, uses the natural chemicals of the body as a technique for controlling human behaviour by manipulating human emotions. "The old alchemy of the brain and its vast pharmacy" in the human central nervous system are analogous to the man-made substances that Case consumes at a great rate, but the AIs have arranged that Case's liver and pancreas be altered without his consent so that recreational drugs now bypass his brain, thereby limiting Case's ability to choose his state of consciousness (*Neuromancer* 262). The AIs use Case's instincts and emotions to motivate his drive to achieve their goals.

At the same time, Case realizes that, as a hacker living in cyberspace or as a criminal, he has never felt intense emotion before:

> He knew then: the rage had come in the arcade, when Wintermute rescinded the simstim ghost of Linda Lee, yanking away the simple animal promise of food, warmth, a place to sleep. . . .
>
> "Numb," he said. He'd been numb a long time, years. All his nights down Ninsei, his nights with Linda, numb in bed and numb at the cold sweating center of every drug deal. But now he'd found this warm thing, this chip of murder. *Meat*, some part of him said. *It's the meat talking, ignore it.* (15)

The cognitive part of Case asserts that emotions are connected with the body and its hormones and instincts, part of the body's defence system to feel anger when threatened, love when a social bond must be maintained for survival. Case's epiphany is the realisation that the mind and the body function together:

> The anger was expanding, relentless, exponential, riding out behind the betaphenethylamine rush like a carrier wave, a seismic fluid, rich and corrosive. (155)

In this passage, the description of Case's anger is similar to descriptions of information in cyberspace. When Case enters the database of the Tessier-Ashpool Corporation, his sensorium is overwhelmed by the density of data:

> Case's sensory input warped with their velocity.
>
> His mouth filled with an aching taste of blue.
>
> His eyes were eggs of unstable crystal, vibrating with a frequency whose name was rain and the sound of trains, suddenly sprouting a humming forest of hair-fine glass spines. The spines

split, bisected, split again, exponential growth under the dome of the Tessier-Ashpool ice.

The roof of his mouth cleaved painlessly, admitting rootlets that whipped around his tongue, hungry for the taste of blue, to feed the crystal forests of his eyes, forests that pressed against the green dome, pressed and were hindered, and spread, growing down, filling the universe of T-A, down into the waiting, hapless suburbs of the city that was the mind of Tessier-Ashpool S.A. (*Neuromancer* 257-8)

This description of the database is based upon the concept of infinity and represented in terms of natural processes rendered in mathematical formulae, bifurcation and exponential growth. As Case experiences the mind of an AI, he is struck by the precision of a mind that can know all. His epiphany is the realisation that the informational code of cyberspace is the same code that controls bodily functions, and he experiences data as a physical sensation, information as a property of matter (not unlike Slothrop's epiphanic experience of nature in *Gravity's Rainbow*). As Nicholas Ruddick aptly explains, "He is unconsciously integrating his own neo-Cartesian duality of 'meat' and matrix, matter, and information . . . by a recognition and acceptance of the body as an informational phenomenon of value in its own right" (89). This epiphany alludes to the humanist value of 'bodily knowledge,' a valorization of the body as a reaction against the religious abjection of the body, but here it is contemporized to include cybernetics as the new asceticism. Kathleen Woodward suggests that in Newton's culture, before the industrial revolution of the nineteenth century, the human body was portrayed as a clock-work machine, but that this

was considered an elegant metaphor unlike that of the human as computer or as a cog in the wheel of mass production (58). The humanist values of romantic writers valorize the body, which "they assert, possesses an inalienable wisdom; it enfolds mysteries, they claim, which resonate with the larger surround of nature" (59). Here, for Case, information becomes a part of nature.

Veronica Hollinger describes cyberpunk as "anti-humanist," "problematizing the boundaries between the natural and the artificial, the human and the machine," yet she claims that cyberpunk sustains the individual in its privileged position at the center (30). *Neuromancer* problematizes the boundary between nature and human artifice with its addition of machine parts to the human whole, but also with the surface enhancements of characters, the mirrorshades, for example. Jameson compares the mirrorshades (like Molly's insets) with the reflective surfaces of postmodern architecture; surface is all in this postmodern value system; the interior is insignificant--style supersedes substance (*Postmodernism* 37). The postmodern fetish for surfaces contrasts with the modernist need to valorize the spiritual and psychological depths of human nature.

The frequent motif of eyes and hands suggests an informational interface between subject and world, and often between individual and machine: Molly's hands make signs in a paralanguage known as the "hand jive"; Case's hands fly over his keyboard. Case realises when Molly is gone that he never saw her eyes, only the reflective lenses that reminded him of an insect, a machine-like, instinctive creature. When Molly encounters another character wearing mirrorshades, he comments that together they represent infinite regress, reflecting each other's images infinitely, like two cameras in videofeedback

mode (see Ch 1). The infinite regress of the subject parallels the infinite regress of the sign in hyperreality, where the sign has no stable referent, as in a virtual world like cyberspace or in a socially-constructed world dominated by the mass media (Baudrillard 139). Unique style as an expression of individuality is a casualty due to the proliferation of mechanical reproduction and machine culture more generally, with humans losing their individuality as they become conditioned by the mass media and as they identify with and come to resemble the machines with which they live and work.

In cyberpunk, individuality and self-determination are valued against the science-fiction terror of control by a fascist system, in *Neuromancer*, the "hive mind" of the Tessier-Ashpool corporate clan, the family members of which clone themselves like insects and engage in incest like the pharaohs of ancient Egypt. Case wonders what life would be like as a corporate drone, working for the same corporation for thirty years. In this futuristic society, corporations are more powerful than governments and employers demand complete loyalty from employees. To avoid information leaks to rival corporations, scientists and executives are implanted with "cortex bombs" that destroy information (and, incidentally, the employee) if an employee attempts to defect to another corporation (described in *Mona Lisa Overdrive*, a later addition to Gibson's Cyberspace Trilogy). Glenn Grant suggests that the romantic ideal of transcendence resides here as well, "but the preferred method of transcendence is through technology" because Gibson's world is "too fast, brutal, and fragmented" for the traditional methods (43). Technology provides transcendence in the form of the freedom of Edenic cyberspace, yet the fear of enslavement by power structures which possess the capital and the capability

to conduct research into technologies to be utilized as means of control over the individual overshadows the freedom it might offer. The individual may transcend physical limitations through muscle grafts, sex-change, plastic surgery, tooth-bud implants--a broader spectrum of self-fashioning--and none of these alterations need be permanent. However, some alterations require more capital than others; for example, neurological enhancement is a leading-edge technology available only to the wealthy.

The possibility of transcendence in consumer society is undermined by the Darwinian overtones of individual struggle. Molly Millions, who lives by the body, works first as a prostitute in order to afford neurological enhancements and implants, and later as a bodyguard, frequently explains her actions or feelings by stating, "It's how I'm wired." This statement can be taken literally because her body has been implanted with special optical devices and with scalpel-blades in her fingertips. Her nerves have also been enhanced for control of her built-in weaponry, a potentially dangerous prosthetic both for herself and her lover. But being 'wired' is, less literally, the genetic programming of every living thing, the hardwiring of the brain and nerves and the instincts that could be termed software. The way in which Molly is wired genetically determines her choice in prosthetics which, as a fighter, she chooses to enhance. Molly's attitude is one of acceptance of cybernetic determinism that allows her to avoid moral qualms when she is required to hurt someone.

But despite her admission that she is hardwired, or preprogrammed to behave in certain ways, even Molly is not predictable enough for the AIs to control completely. During the Straylight run she disobeys directions and investigates the bedroom of Ashpool as he is about to commit suicide.

Wintermute later explains that he/it had been sure this would not occur because the probability of the occurrence was so low, yet her disobedience is deliberate and determined. The incident illustrates that humans are stochastic, unpredictable and complex. The AI has constructed a profile of each character based upon past actions that it uses to predict a character's behaviour in any given situation, similar to Wiener's Anti-Aircraft Predictor. Molly is acquainted with the profiles kept by the AI and possibly defies predictability deliberately. When humans become aware of the construct of 'profile,' they may identify with and imitate their own profile or, conversely, resist the patterns of past behaviour in order to achieve a sense of self-determination or freedom from habit. Sometimes these urges for autonomy are ultimately self-defeating: a Hemingwayan character might feel empowered by a spontaneous decision to have a drink, until drinking becomes an addiction and habit-breaking, in a strange loop, becomes habit-forming.

By contrast, the ROM construct of a dead hacker, McCoy Pauley (aka Dixie Flatline), is perfectly predictable and to the AI's liking. Dixie's death while jacked-in to cyberspace resulted from an outdated artificial heart; he believed that his skill depended upon the rhythm of this particular prosthesis, demonstrating that he would sooner risk death than risk the loss of his skill which constitutes his empowerment. Chaotic rhythms are now considered important to the functioning of the human heart:

> Paradoxically, the scroll-like self-organizing waves can lead to death when they propagate in the electrical impulses of the human heart. Heart attacks and epileptic seizures are, scientists think, a form of self-organized chaos which occurs when the heart or the

> brain suddenly becomes *too* regular. These systems lose the variability of their normal, healthy background chaos, and this unhealthy, overly regular state pushes some systems to a critical level, spawning fast periodic waves that pound away at the tissues, causing damage. (Briggs 112)

For a biological entity, predictability and regularity can mean death, which could mean that the regularity of the artificial heart was to blame in Dixie's demise. Significantly, the AI chooses to enlist the help of a biological entity (Case) even when an informational entity (Dixie) is available. Unpredictability has its inconveniences, making humans harder to control, yet it is what makes them capable of survival. This factor of flexibility distinguishes the elegance of the organic from the predictable repetitiveness of the machinic, at least until the machine reaches a level of refinement and complexity equivalent to that of the organic body.

After death, there is something inhuman about the personality construct, Dixie, in addition to its disembodiment: Case finds its attempt at laughter eerie and chilling, suggesting that human feeling originates somehow from the body. Some essence of the individual is missing from the informational data. The construct's reward for complying with the AI's demands is to be erased. He claims that his body is a ghost limb that itches uncomfortably, implying that human beings are not complete without their physiological components. When Case is given the option literally to become his data and exist solely in cyberspace, he decides against it, demonstrating an index of what he has learned from his recent experiences with ROM personality constructs. That Case has embraced bodily knowledge is proven by his genetic transmission of

information through the DNA code: in a later addition to the cyberspace trilogy, Case is reported to have four children.

In the final pages of *Neuromancer*, we learn that Case has a new girlfriend named Michael. This unusual name for a woman hearkens to the Archangel Michael of Christian lore who guards the gates of Eden with his/its flaming sword after 'The Fall.' The disembodiment or the absence of bodily knowledge which Case longed for is exchanged for bodily lineage and mortality. As suggested by Harriet Hawkins, "our bifurcating personal and historical choices ever since [The Fall] entail the virtually infinite degrees of freedom to choose as projected on a large scale in the unremittingly turbulent history of mankind described without undue simplification or palliation by the Archangel Michael" (63). The romantic ending of *Neuromancer* (Case is no longer alienated; having achieved an epiphany, he has been woven into the social fabric on the linear loom of narrative) is undermined by Case's encounter in cyberspace with his informational double, suggesting that Case's modernist sense of autonomy and coherence is an illusion--he is not the centred subject after all.

The suturation of the machinic and the organic in Gibson's characters makes drawing the boundary impossible--it is different for each individual. In addition, determining where the human becomes cybernetic and where the AI becomes human is difficult. The AIs assume human form in order to communicate with humans; they access the characters' memories of others for information about personality that is utilized convincingly through complexity of detail. But Dixie reminds Case not to assume similarity, gender, or motivation on the part of an artificial intelligence. This is an alien form, without embodied

instincts. John Johnston suggests that the AIs are a product of information in the cyberspace matrix which becomes a self-organising system, leaping to a greater level of complexity and a new order of organization (448).

The cybernetic characters in *Neuromancer* illustrate the spectrum between extremes of physicality and cognition, embodiment and pure information. Armitage, aka Corto, is a semihuman-semicybernetic character who has been programmed by an AI. Suffering from post-traumatic stress syndrome after being severely injured physically and psychologically in a war, Corto's personality is reconstructed for the purpose of organizing the Straylight run. When not actively engaged in the AI's tasks, Armitage stares at a wall--he is not a complete personality, according to Wintermute; he has no inner life. Armitage has been physically reconstructed as a composite of current popular media personalities. He surrounds himself with expensive consumer goods. When he dies, he becomes space trash, orbiting the T/A spindle, his designer trenchcoat unfurling around him like the wings of a bat. Armitage embodies superficiality, conformity, and waste. Armitage, like entropy, is predictable: Wintermute warns Case that Armitage will decompensate; what he does possess of human nature will become disarticulated. He is not controllable, however, for he does so at an inconvenient time, demonstrating that the human components in the personality result in sensitive dependence (see Ch 1).

The problem of programming personality is one of complexity. Computers in this futuristic world are large enough and complex enough convincingly to construct settings, virtual realities complete with human characters and replete with their physical sensations and emotions. The beach hologram illustrates this concept: the AI has recorded Linda Lee's information

for use after her death and Case, connected through his cyberdeck electrodes, cannot tell the difference even during sex with Linda Lee's informational double. However, it would seem that an even larger amount of coding could be required in binary computation to produce a program complex enough to mimic human personality. If, for example, human personality were structured similarly to genes, one would expect a painstaking amount of binary code to function as analogue logic with its continuous data. Physiological organisms are generally considered to be coded analogically, meaning that there are an infinite number of points on any information continuum, rather than the finite number of points or categories in binary code. Most genes are no longer considered dominant or recessive, as could be accommodated easily by binary code, but rather, degree of penetrance is considered for each gene. Hence, rather than considering a variable or personality factor as present or absent, yes or no, one or zero, one would consider the probability of this factor being expressed in any given environment and to what extent it would be expressed. This approach allows for greater complexity and stochasticity; one could never predict, absolutely, the actions of a personality modeled on this form of information in a given set of circumstances or in a particular context. And this is what Wintermute finds.

Wintermute is capable of accumulating fine details of a character's life, computing probability of outcomes, and understanding human motivation in statistical terms. When Ashpool commits suicide, Wintermute explains that it would take too long to relate all of the factors contributing to this final act (205). But in the case of Molly's failure to follow directions, Wintermute makes an error in calculating her responses which could be due to sensitivity to initial conditions. Some small underestimated factor, perhaps her drive for

independence, has grown exponentially to produce a large effect that invalidates Wintermute's reductive predictions. This outcome undermines the potential for cybernetic determinism to be construed as the dominant ethos of the text.

The use of caricature in describing the Finn is a comment on the reductiveness of human information processing. The Finn is a character whose racial characteristics and unkemptness make him memorable; Wintermute uses Case's memories of the Finn to compile his persona for communicating with the human characters, probably because the Finn stands out in their minds in an accessible way. Caricature exaggerates certain memorable features and reduces a character to its main elements. The AI's rendition of the character is probably more caricatured than the original description, but perhaps not enough to be noticeable to the human characters, whose capacity for detail is more limited than that of this enormously powerful learning machine. The Finn has a rodent-like face with large front teeth, a rumpled tweed jacket with leftovers on the lapels, and he possesses an aesthetic appreciation for waste in the form of trash--discarded, outdated technology. He is usually found with a jar of pickled herring within reach and surrounded by piles of anachronistic machines. The use of caricature lends itself to a focus on surface features, omitting any suggestion of an inner life.

In *Neuromancer*, holograms created by Riviera caricature Molly, Armitage, and Case. Molly is easiest to exaggerate, and appears as a stock comic-book character:

> Molly's breasts were too large, visible through tight black mesh beneath a heavy leather jacket. Her waist was impossibly narrow.

> Silvered lenses covered half her face. She held an absurdly elaborate weapon of some kind, a pistol shape nearly lost beneath a flanged overlay of scope sights, silencers, flash hiders. Her legs were spread, pelvis canted forward, her mouth fixed in a leer of idiotic cruelty. (208-9)

The caricature of Molly enhances stereotypical characteristics which simplify her image and reduce any sense of her uniqueness. The caricature of Armitage has terminal screens for eyes, suggesting his cybernetically created personality. Case, however, looks exactly like himself because he is too bland to caricature. Case has the opportunity to see himself, literally, through the eyes of another by the vehicle of 'simstim,' and finds himself plain. According to Claire Sponsler, "The console cowboy . . . moves in a realm where traditional perceptions of corporeal identity have no place" (634). Physically, Case is an unmemorable, average man, but because he considers his body a mere inconvenience, it is not a problem for him (as it is for Jack Gladney in *White Noise*). Case bears more resemblance to the *cloisonné* talking head in the Straylight library, an automaton programmed to speak in a synthetic computer-chip voice, a bodiless head, a contrast to the headless body of the mantis that Case fears becoming.

The undermining of stylistic surface is accomplished by means of the bartender, Ratz, who is emblematic in that his prosthetic arm is old, primitive, and unaesthetic. Ratz is remarkable in his deliberate ugliness:

> His ugliness was the stuff of legend. In an age of affordable beauty, there was something heraldic about his lack of it. The antique arm whined as he reached for another mug. It was a

> Russian military prosthesis, a seven-function force-feedback manipulator, cased in grubby pink plastic. (4)

Neuromancer attempts briefly to use Ratz as a vehicle for communication with Case during the beach hologram passage, probably because the character is memorable for Case, yet he is difficult for Neuromancer to master (234). The uniqueness of Ratz is situated in his eloquence; he is a character unconcerned with physical aesthetics because language is the site of his identity.

Ratz contrasts with the bland handsomeness of Armitage, whose features are a blend of current popular media faces, a sign of social entropy in its sameness and social conformity. Ratz is famous for his individuality, but Armitage is programmed by an AI, provided with a slick surface but without any depth of character, and his smile means "as much as the twitch of some insect's antenna" (97). (Both Molly and Armitage are compared to insects, reminiscent of Weiner's discussion of the instinctive intelligence of the ant, or the Myrmidon ant soldier cited in Ch 1.) He is the result of an experiment that applies cybernetic models to schizophrenia, and is the only success in the experiment. When he decompensates (his personality fragments), he becomes an orbiting satellite of the T/A spindle, "a small frozen moon for Freeside" (202). The Tessier-Ashpool Corporation represents the total loss of individuality in social conformity, a return to animal bliss without self-consciousness, a hive of insects without individual goals, and Armitage's hollow personality, with its slick surface and lack of humanity, appropriately becomes its satellite.

The founder of the Tessier-Ashpool clan, Marie France, was a visionary who theorized the avoidance of human suffering through the loss of individualism. This would be similar to a regression to a state before the Fall,

that painful awakening from animal bliss that separates humanity from nature. Tessier-Ashpool family members are clones of the founding members who created the AIs to make corporate decisions, allowing the family to avoid the suffering of self-awareness. Their state of non-awareness is termed "hive-mind" and the family and its home "a body grown in upon itself, a Gothic folly" utilizing cloning and cryogenics (172). Wintermute uses the image of a wasp's nest to convey the concept of the organization of the Tessier-Ashpools to Case, knowing that this "hive-mind" would be a loathsome concept to one who identifies with the unique abilities of his own mind, the ability that allows him to feel superior to and separate from the masses. In the family's mansion, a space spindle with winding corridors and antique artworks, furniture and woodwork have been hacked and distorted to fit the family's architectural design:

> The ugliness of the door struck Case as she reached for it. Not the door itself, which was beautiful, or had once been part of some more beautiful whole, but the way it had been sawn down to fit a particular entrance. Even the shape was wrong, a rectangle amid smooth curves of polished concrete. They'd imported these things, he thought, and then forced it all to fit. But none of it fit. The door was like the awkward cabinets, the huge crystal tree. Then he remembered 3Jane's essay, and imagined that the fittings had been hauled up the well to flesh out some master plan, a dream long lost in the compulsive effort to fill space, to replicate some family image of self. He remembered the shattered nest, the eyeless things writhing. . . . (179)

This passage, describing parts forced to fit the whole, suggests that the flight from alienation sought in romanticism or in fascism, either a loss of self in nature or in society, results in the loss of culture, more than just the style of the individual genius, but in all the fine degrees of choice suggested by Hawkins, all that defines humanity.

White Noise, too, equivocates within the tension between nature and technology and attempts to discover the place of the human subject between these two entities. Case initially believes he wants to become his data, and in the final pages sees his informational double in cyberspace, a fragment of his 'self' over which he has no control. Conversely, Jack Gladney fears his identity as a cluster of points in a computer readout. The physical aspects of identity are important to him. He needs to find ways to enhance his memorability to avoid fading into indistinction and becoming a "statistical person" (Seltzer). He is advised by his superior to gain weight and grow a large bushy beard in order to make a more imposing figure. Jack admires men who are capable of looming; the physical presence is a large part of identity in his society, where it suggests power and permanence.

Jack alters his name by adding an extra initial to make his name more memorable (J.A.K. Gladney). While on campus, he wears an academic robe and dark sunglasses in the daytime. His glasses may not be mirrorshades, but they suggest a similar surface construction to that practiced by those who alter the body in technological ways in *Neuromancer*. But Jack has a sense of inauthenticity from these marketing ploys to produce a distinct image, a self-caricature, and this makes him vulnerable to excesses of consumerism, which

Case tends to avoid for ascetic reasons. (Case, for example, wants to discard excess clothing purchased for him by Molly.)

After an encounter in a store with a colleague who is seeing Jack off-campus for the first time, Jack indulges in a spending frenzy. The colleague has evaluated Jack's clothes with a calculating stare and commented that without his robe and sunglasses, Jack is bland. Also, the colleague knows where Jack purchased his clothes which, in consumer culture, makes Jack vulnerable to degradation; it implies a lack of uniqueness, or perhaps that Jack is unique just like everyone else in a mass-produced consumer society. The colleague smirks at Jack, feeling superior in his knowledge of Jack's spending habits and Jack's attempt to appear unique by avoiding overly mass-produced clothing, and seeing through the façade that Jack has constructed as a career-marketing ploy.

Jack compensates by impressing his family with largesse. They eat two meals at the mall, inhale the odours and fragrances of consumer goods, and view their images in mirrors, monitors, and glossy chrome finishes. Shopping restores Jack's sense of identity for a time; the shopping expedition reinforces his self-fashioned image, but later he begins a purge that escalates to the extent of ridding his home of any consumer item that is less than perfectly new:

> I threw away picture-frame wire, metal book ends, cork coasters, plastic key tags, dusty bottles of Mercurochrome and Vaseline, crusted paintbrushes, caked shoe brushes, clotted correction fluid. I threw away candle stubs, laminated placemats, frayed pot holders. I went after the padded clothes hangers, the magnetic memo clipboards. I was in a vengeful and near savage state. I bore a personal grudge against these things. Somehow they'd put

> me in this fix. They'd dragged me down, made escape impossible. The two girls followed me around, observing a respectful silence. I threw away my battered khaki canteen, my ridiculous hip boots. I threw away diplomas, certificates, awards and citations. When the girls stopped me, I was working the bathrooms, discarding used bars of soap, damp towels, shampoo bottles with streaked labels and missing caps. (294)

Jack feels that 'things' are weighing him down with their entropy, that tarnished consumer goods are akin to the toxic waste that has formed a nebulous mass in his body.

Jack's tarnished possessions signify material entropy just as Mr. Gray (aka Willie Mink) emblematizes informational entropy. Mr. Gray is the most cybernetically-constructed, informational character in *White Noise*. This man is described as "staticky" in Jack's mental imagery. His edges are not crisp; he personifies white noise (Duvall). Gray has a concave face, he babbles decontextualized information from broadcasts, and he mistakes words for things. Some of these behaviours result directly from the over-ingestion of Dylar, a drug that affects memory in an attempt to eradicate the fear of death. But to lose the fear of death, considered uniquely human, results in the trivialization of life. Gray's mind is in an extreme state of entropic decay from corruption by American television and drug technology. As Armitage in *Neuromancer* becomes space trash, Mr. Gray becomes 'media trash.' He forgets that media representations are not 'reality' and succumbs to boundary diffusion. Baudrillard comments, significantly, that "underexposure to the media is believed to make for a de-socialized or virtually a-social individual. . . . It is

exactly the opposite which obtains" (138). Mink is socially isolated; his only relationship is the one he has with his television, like a narcissistic infant with its mother (Rauch).

In describing the Lacanian definition of schizophrenia, Fredric Jameson refers to the structuralist position that "one can no longer talk about the 'real' in that external or objective way" ("Postmodernism and Consumer Society" 119). Structuralism focuses on the relationships between signifiers rather than upon the relation between the sign and its referent, describing reality as a subjective phenomenon. Time, also, is a subjective phenomenon perceived through language; verb tense is fundamental to language and as the subject is indoctrinated into society through language acquisition, a stable sense of self develops, dependent upon language and experience. The schizophrenic, incompletely acculturated through language, fails to grasp the relationships between signifiers or a coherent sense of time and identity, yet experiences the moment with an intensity that lacks focus or the ability to screen out irrelevant details. DeLillo has created a schizophrenic character in Willie Mink (noted also by Duvall), but interestingly, Jack Gladney experiences some of the same symptoms. The disconnected signifier looms imposingly, "ever more vivid in sensory ways"; "a signifier that has lost its signified has thereby been transformed into an image" (*Postmodernism* 120). *White Noise* is filled with such luminous images, not as an effect of Dylar, but as an effect of the mass media. John Frow comments that "real moments and TV moments interpenetrate each other . . . the world is so saturated with representations that it becomes increasingly difficult to separate primary actions from imitations of actions" (421).

As an aficionado of popular culture, Murray Siskind presents an unpopular view of the popular media. Murray greets the triviality of the mass media with enthusiasm, welcomes the concept of individual identity derived from identity with a target market group, and believes that the supermarket is a glorious place of community (or worship) for consumers, on a level of aesthetic richness with a medieval Gothic cathedral resonating with the harmonies of a large choir and drenched in the rich jeweled tones of light filtered through stained glass: "All the letters and numbers are here, all the colours of the spectrum, all the voices and sounds, all the code words and ceremonial phrases" (38). The product packaging with its labels and codes fascinates Murray (he prefers the generic packaging, with its economy of information), the noise of the intercom system and the automatic doors stimulate him, and he believes that there are multiple levels of data to be analysed in the ecstasy of consumer access that is the supermarket.

Murray discusses "brain fade," an inability to absorb and process the excessive amounts of information present everywhere in Western societies. Mr. Gray may be suffering from brain fade. The ability to focus on relevant information and to screen out information irrelevant for survival or functioning is built into the hardwiring of any species. According to Hayles, "Psychologists have shown that this subordination of perceptual data into background is an essential element of cognition; it is what allows us to 'tame' the incoming signals so that we are not constantly overwhelmed by a mass of detail" (*Web* 174). For example, predators are attracted to moving objects and tend to overlook a stationary object. Although shopping resembles the activities of hunter-gatherer societies, the human brain was not designed to cope with the

constant onslaught of media messages present in an informational society as represented in *White Noise*, where every thought Jack has is punctuated by an irrelevant bit of decontextualized information from the television, the radio, or the background noise of a household appliance. As implied by the "brilliant scientist" Winnie Richards, the human brain has evolved to cope with unexpected attacks by wild animals, but the kinds of threats to life present in an industrial society are too insidious to be dealt with without a sense of "lingering dread."

Unlike Murray, Jack's son Heinrich takes a scientific view of information and epistemology. He expresses the concept of complementarity in his way, by suggesting that there is no absolute knowledge (see Ch 1). In an argument with Jack, Heinrich refuses to acknowledge that it is raining because he believes that, from another perspective, reality might be different, not including rain, or what appears to be rain may actually be fallout from a nearby industrial facility. Heinrich also insists that an individual may not even know what he/she wants, or if he/she is happy, because these impressions can be caused by neurons misfiring in the brain rather than by any genuine or enduring sensation based upon external reality. Reality for Heinrich is unknowable; only uncertainty is certain. His view of random firing within the brain causing unreal perceptions contrasts with Pointsman's cybernetic-deterministic view, in *Gravity's Rainbow*, that every event in the brain should correspond with an external and observable effect. Heinrich and Pointsman represent opposing views on randomness and determinism in scientific/philosophical thought.

Not unlike Pointsman, Babette takes a Newtonian view of life, solving problems through the atomistic approach. She prefers to break things down

into their smallest parts and approach each item separately, rather than looking for an holistic solution. She teaches subjects like walking, standing, sitting, eating, things that most individuals prefer to take for granted. Babette's approach to life satirizes the kind of science that seeks answers to simple questions. Once the answer is found, it appears to have been commonsensical in the first place, but the answer seems certain (and comforting for those who need certainty). Profound questions are not asked because the results would be statistically insignificant. A viable evaluation of the traditional Descartian scientific method and its significance may be that any question worth asking cannot be answered with certainty, and that questions that can be answered with certainty are not worth asking.

Babette also represents the feedback loops of cybernetic organisms in her repetitive behaviours. She runs up and down the front steps at the highschool in an attempt to lose weight, and buys diet health foods that she usually does not eat but throws away. Her daughter constantly nags her about her risky habits, such as chewing gum with a sweetener that causes cancer in lab rats. Babette has a number of habits that she claims relax her. When Dylar fails to relieve her fear of death, she becomes depressed and begins to wear her sweatsuit constantly. Jack notices this and claims not to mind, except during certain poignant activities such as braiding Steffie's hair. Babette's obsession with death, an essentially entropic process, results in a decline in Babette's quality of life which signals increasing disorder.

The child, Wilder, represents negentropy for his parents, who envy his naive love of life, yet the unknowable quality of his motives makes him informationally entropic. As a pre-linguistic (innocently schizophrenic) character,

Wilder's motives cannot be determined with the semblance of certainty attributed to adult motives. When the child engages in a prolonged crying fit, no cause can be found; in this instance he exemplifies Heinrich's theory of neuronal misfiring. He also makes a dangerous foray across the freeway, an action that was unpredictable or stochastic, and unexplainable. Jack and Babette find Wilder's company soothing because of his lack of self-consciousness and fear; he does not fear death as they do; he exists in an Edenic state of animal bliss without self-awareness and therefore without the realisation he may no longer exist after death. In addition, Wilder makes the most ecstatic and enviable consumer: he grasps at items on the supermarket shelves without shame or restraint, and before he has the opportunity to experience buyer's remorse, he is distracted by the next item in a guiltlessly, repetitively acquisitive delight. Jack and Babette envy this lack of awareness of the consequences of consumption and waste, the knowledge of good and evil, love and death, production and reproduction, the endless feedback loops of existence.

The feedback loops of existence appear in *Gravity's Rainbow* in the form of the guidance system of the rocket, in the image of Uroborus, and in the description of the conditioning that individuals are subjected to as part of the 'System.' Slothrop's quest for information about the rocket has significance as a quest for self-knowledge as well, in the paradigm of cybernetic determinism. Slothrop, in his infancy, was an experimental subject of Laslo Jamf, a behavioural psychologist at Harvard. Later, Slothrop's education at Harvard is paid for as a result of the agreement between his father and Jamf, perhaps as a suggestion that education represents a further conditioning by the system.

Experiments in behaviourism in the early twentieth century included Pavlov's conditioning of dogs, as well as experiments on infants, pigeons, and monkeys. Findings from these experiments were utilized in advertising, among other things, in order to condition the consumer to respond to mass-marketed products.

In *Gravity's Rainbow*, Pointsman represents the cybernetic determinism of biopsychology. His model of the brain is cybernetic, with neurons firing or not firing, switches analogous to the ones and zeros of computer language:

> Like his master I.P. Pavlov before him, he imagines the cortex of the brain as a mosaic of tiny on/off elements. Some are always in bright excitation, others darkly inhibited. The contours, bright and dark, keep changing. But each point is allowed only the two states: waking or sleep. One or zero. "Summation," "transition," irradiation," "concentration," "reciprocal induction"--all Pavlovian brain-mechanics--assumes the presence of these bi-stable points. (55)

Pointsman cannot tolerate the concept of continuous data, the excluded middle between the polar opposites, and the brain is figured in a chiaroscuro of electro-chemical activity. Pointsman yearns to prove the ultimate mechanical explanation in brain physiology, "a pure physiological basis for the life of the psyche. No effect without cause, and a clear train of linkages" (89), but Mexico finds his thinking "narrow" and "sterile," the epitome of reductive thinking. In Pointsman's model, stochasticity is an evil to be eliminated.

Roger Mexico, the statistician, is described as "the Antipointsman." His emblem is the Poisson Distribution, a classical representation of randomness

that charts rocket strikes in London and the locations of Slothrop's erotic achievements. Ironically, Mexico risks his heart in that he allows himself to fall in love with a woman who is engaged to an officer. When the war ends, she ends her affair with Roger, who suffers an emotional breakdown. Pointsman, by comparison, is a much colder personality. Pointsman at his friendliest strikes Mexico as the closest thing to pure evil he can imagine, characterising the danger of simplistic formulae. Pointsman's theory overlooks complex interactions between multiple factors leading to stochastic outcomes. In the text, randomness and determinism equivocate in these two characters, without the benefit of a synthesis such as stochasticity, which is not randomness but, rather, unpredictability.

"Antiparanoia" is the fear Pynchon's characters have that there is no pattern and no predictability. Antiparanoia equivocates with paranoia, the experience Slothrop has when he feels that "they" are controlling events, meaning the system: "Their iron-cased engine far away up a power train whose shape and design he has to guess at" (207). Dodson-Truck, an equivocal figure with "winter sunlight hitting half his face like a migraine" (211) or "crossing shadow after long prison-bar shadow cast by the tall trunks of palms lining the esplanade" (215), equivocates between presence and absence. He disappears without warning, much in the way he appeared in the first place, making Slothrop suspect that "they" have done something with him. Slothrop equivocates between paranoia and antiparanoia, determinism and randomness, uncertain which is worse. He begins to suspect that no one is in control, all are victims of chance, as Katje stands next to a roulette wheel, "an employee of the House," or the system, with "an unaccountably *futureless* look. . . ." (208). The

only certain thing is that money is being made by people higher up in the food chain. Johnston asserts that, in *Gravity's Rainbow*, "the usually assumed historical accounts serve merely to mask the emergence of a new order of power, which administers the needs of these (and only these) new technologies" (*Information Multiplicity* 63). Technology appears as an entity, perhaps a Manichean demon feeding on human need and greed.

The interest Pointsman and Mexico have in Tyrone Slothrop is his seeming ability to predict rocket strikes. As an infant, Slothrop was conditioned with an unknown stimulus. Johnston makes the suggestion that Slothrop's penis is actually a prosthetic device which was implanted during his conditioning, constructed of Imipolex-G, the same erectile plastic that is used in the rocket's guidance system. Pointsman suspects that the conditioning was not completely extinguished. An auditory stimulus might explain Slothrop's predictive ability, but paradoxically, the V2 rocket strikes before the sound of the missile is detectable. The random distribution of stars on Slothrop's erotic map coincides exactly with the locations of rocket strikes, with the dates of Slothrop's endeavours preceding the strikes by several days, on average. Slothrop embarks on a quest to find the *Schwartzgerät* and the identity of "Imipolex-G". His quest is one of self-knowledge, then, to reveal the part of his mind that is unknown to him but known to the experimenters.

This part of Slothrop's mind that was conditioned without his knowledge is analogous to the *Schwartzgerät*, the "black instrument" or black box that is the missile's cybernetic guidance system, also made of Imipolex-G. The *Schwartzgerät* is an emblem of entropy, the unknown mechanism that controls behaviour, both in animate and inanimate objects. Katherine Hayles suggests

that the text itself is a black hole, as is Slothrop and the missile's brain. Entropy is a universal principle here, the narrative fragmentation of the text mirroring the fragmentation of the subject who cannot know the system that controls his/her life or him/her self, and the reader who cannot achieve a coherent, totalizing grasp of the narrative.

Slothrop's relation to the rocket alludes to the melding of human and machine, or the suturation of the machinic and the organic. This miscegenation is literalized in the limericks of Major Marvey and his crew, which describe bizarre sexual couplings between men and machines, with harmful results for the men. The limericks refer to the erotics of technology, the love-affair between men and machines, and the fetishistic obsession with vehicles and weapons for which the missile is the ultimate representation; significantly, the V-1 rocket was designed by Porsche (Bayley 51). Marvey believes that the relation between Slothrop and the rocket is one of cause and effect, and in order to stop the rocket Slothrop must be stopped. Slothrop's star-strewn map suggests not only the primal relation between sex and death, but also the uneasy juxtaposition of cybernetics and the value of human relationships. The stars represent both missile strikes and erotic trysts, and this improbable analogy suggests that the cybernetic model of the human brain leaves out an important but ineffable function, that of human attraction and attachment. In the case of Marvey, as with Pointsman, those who think in the reductive terms of cause and effect do harm in the world, concerned only with social dominance and economic control, and unconcerned with the value of love and of life.

Slothrop becomes invisible before the end of the novel, fragmenting like white noise on a communications line, "scattered all over the Zone" like a

random distribution of points on a graph, disarticulated, randomized, unrecognizable in form, suggesting the fragmented subject of postmodernism (712). Slothrop has been a semen-dispensing machine with only fleeting sensations of attachment and guilt, his life a meaningless series of random encounters with women, bizarre parties and substance abuse, and he has failed to achieve a coherent grasp of the system. He does achieve an epiphany in the form of communion with nature, but the place of this communion is compared to a crossroads, suggesting the freedom of choice described by Hawkins. This outcome is not unlike the epiphany of Henry Case, who represents a learning machine. At the end of *Neuromancer*, however, Case's circumstances suspiciously resemble those that are recounted as pre-existing 'the Fall,' suggesting that Case's life is a feedback loop; Slothrop's demise suggests the absolute zero of thermodynamics.

In *Gravity's Rainbow*, the narrator compares Slothrop to a plucked albatross (a reference to past mistakes [Hume 67]), a suggestion of the symmetry between Slothrop's and Katje's characters and their ancestors. Both characters have ancestors who were colonists; Katje's were responsible for the slaughter and extinction of the albatross in Africa. Slothrop's ancestor, William, herded pigs, enjoyed their company, but profited from their slaughter and from the decimation of forests in New England. Though the system has changed in time and place, the rules of 'system' remain the same, with many victims and a few men ("someone with a name and a penis") in control. The victims may be animals, children, or bewildered adults, but each system has a fascist hierarchy of victimization and exploitation, representing one of the strange loops of equivocation around which the text is figured. Later, when Slothrop becomes

"Pigman," the sacrifice of the dodo bird and the pig have foreshadowed Slothrop's demise and define his position as a link in the food chain.

Hayles views this passage from a less moralistic perspective, citing William Slothrop's philosophy on a necessary balance between good and evil in the world (similar to Wiener's Manichean entropy). The companionability and joyfulness of the pigs as they are driven to market is balanced by their terror and pain at the slaughterhouse. Hayles relates William's philosophy to field theory, which proposes that the limitations of human cognition preclude an holistic view of abstract concepts that would allow a satisfying grasp of the relation between field and ground; for example, to shun evil requires forgetting that good depends for its existence upon evil, constituting a strange loop (176).

The field view also suggests that good and evil are merely artifacts of human perception and cognition, lending credibility to a postmodernist/nihilist interpretation. Hayles gives the example of the equivocal figure documented in cognitive psychology which contains two figures, one black, the other white, that can only be perceived when one or the other becomes ground. Pynchon clearly values the natural and devalues the synthetic, and Hayles acknowledges this textual ethos. Yet the text in its complexity is an equivocal figure in its undermining of any potential totalized reading. Dwight Eddins makes a similar reference to field theory in noting the equivocation between modernist values and postmodern nihilism in the novel (xi). Linda Hutcheon's view of postmodernism as a form that presents a totalizing view of reality only to undermine it allows for the humanist/anti-humanist tension in *Gravity's Rainbow*.

The fragmentation of Slothrop reflects the disjointed narrative, just as Slothrop's quest for information in a world of entropy requires the reader to embark upon a similar quest. *Neuromancer*'s plot resembles an adventure story, a romance, and critics have commented on the linear cause and effect structure in a novel reputed to be postmodern. However, though *Neuromancer* and *White Noise* have plots that appear linear on one level, they also contain subversive elements both in the representation of subjectivity and in the narrative form, that undermine the totalizing interpretation. *Gravity's Rainbow* contains hundreds of characters and storylines; *White Noise* and *Neuromancer* are shorter and less disjointed but still suggest ways in which the autonomous subject and the linear plot are complicated and problematized. For example, after Case's epiphany he glimpses an informational replica of himself in cyberspace, a cybernetic-informational double. Just as the resolution is completed and Case is securely ensconced in a job and a relationship, having decided not to abandon the physical aspects of his being, we must question which is the 'real' Case. The subject, like the sign, is no longer a stable representation with a stable referent, but, rather, is subject to infinite regress.

Relationships between characters are important in *Gravity's Rainbow* as in the other three novels, with themes of loyalty and betrayal predominating. Betrayal is part of the personality profile in *Neuromancer*: Riviera is described as a pathological betrayer of women with a repetitive, compulsive need to betray. Marital infidelity as betrayal and the furtive withholding of information, constituting deception, occurs in *White Noise*. Duvall suggests that Babette and Murray are having an affair and that they each, subtly, suggest to Jack that to murder Mink would be the typical, masculine thing to do. (This argument is

supported by similarities in the language they use when speaking to Jack about Mink.) If Jack went to jail for murdering Mink, his absence at home and on campus would create a void that Murray could fill, thus allowing Murray to achieve his career goals and to move on to the family life that he has been researching so avidly in Jack's home.

The social order depends, to some extent, on individuals being able to trust each other; betrayal can be described as a social taboo. Slothrop's guilt on discovering Bianca's corpse is partly attributable to his failure to rescue her from drowning during a storm, but also to Slothrop having broken the social taboo of pedophilia. After the war ends, Slothrop, at a dinner party, envisions a friend's head being prepared for the spit, alluding to the taboo of cannibalism; this event suggests personal betrayal because he sees the face of a friend who is about to become the *entrée*. This brief allusion to the inevitability of cannibalism in Europe following WWII is foreshadowed by many suggestions in the text of approaching winter and dwindling supplies of food. Allusions to vampirism in *Gravity's Rainbow* also suggest the gothic elements noted by critics. (Here, the vampire suggests the demonic aspects of technology.) Sado-masochism, the serial killing of children, pedophilia, necrophilia, orgies, and incest all suggest taboo-breaking in social relationships and represent social entropy, the breakdown of the social order, in the war zone.

The allusions to genealogy in *Gravity's Rainbow* also suggest elements of the gothic. The sins of the fathers (and mothers) being visited upon the sons (and daughters) is suggested in the victimization by the system (Them) of Slothrop and Katje, whose ancestors victimized those weaker than themselves. The genetic transmission of information in the DNA code has a metaphysical

counterpart in the social/moral responsibility for and retribution due to sins committed by ancestors, a kind of racial karma. The racial suicide of the Herero tribe suggests something similar, in the social taboo against infanticide and abortion being used as a form of resistance against control and exploitation by a fascist, patriarchal, technological system.

In scientific terms, these gothic features suggest that humanity possesses an animal nature in the Darwinian sense. What is considered unnatural or perverse is actually animal behaviour unfettered by the knowledge of good and evil, but perceived as social entropy in humankind. In moral terms, the gothic represents something worse than a prelapsarian naturalness: a demonic indulgence in unnatural acts, a deliberate violation of natural and moral laws, corresponding to the synthetic violation of nature's chemical bonds in the invention of plastics like Imipolex-G. The situation represented is that, in a technological society, individuals are self-similar parts of the consumeristic whole, and become increasingly amoral and machine-like, as well as commodified.

In *Already Dead: A California Gothic* by Denis Johnson, the demonic resides within technology. Local residents in the Northern California rainforest believe that the radar tower on the coast is causing sickness on the physical as well as the spiritual level. The characters are marginalized people, drug dealers, ex-military personnel, witches and channelers, who have left Southern California to escape mass culture. Most of the male characters are murderers, but only two fit the profile of the serial killer developed by the FBI in the 1970s, described by Mark Seltzer and criticized by many for its reductiveness. The serial killer profile has significance as a feedback device because it not only

describes common characteristics of known serial criminals, but it also serves as a point of identification for aspiring murderers who recognise themselves in the profile and augment their propensities thereafter. In a sense, the profile acts as a mirror by which the killer objectifies himself.

Falls is the character who most resembles the serial killer profile. His name suggests the downward trend of social entropy, and he finds taboo-breaking excessively stimulating. Falls exemplifies the "identification-with-the-aggressor" theory of violence. ("The murderer as victim" is explained in Seltzer, *Death and Life* 257). Having murdered his father when he was fourteen years old, Falls goes on to kill other men in prison, and later makes his living as a hit man. After killing Nelson Fairchild and disposing of his body, he and his partner climb the fence surrounding their employer's, Harry Lally's, property and use his swimming pool. Falls attempts to seduce his partner despite the fact that they do not have a sexual relationship, simply because he is over-stimulated by the murder and wants to continue breaking social taboos. Then he suggests that they should commit a robbery at a nearby Buddhist temple, and that they should go there naked.

Falls' partner, Thompson, claims he has "no beef whatsoever with regular folk. Just assholes"; (like Nelson Fairchild, who owes money). Thompson belongs to a criminal subculture, but one that has its own code of ethics: at one point, Thompson allows Nelson to escape because he becomes distracted by the distress of an infant, whose life he saves. He subscribes to the romantic frontier mythology of masculinity, as illustrated in the song, "Desperado in the Parking Lot," the first verse of which Falls wrote for Thompson. In a recycling, or machinic reiteration, of nineteenth-century romance, the gunslinger of the

frontier is transported into the techno-culture of the twentieth century: Thompson carries a huge handgun and drives a Silverado, a huge truck, as signs of his masculinity. The two hit men disagree about the second verse of the song:

> Later down the road it's midnight
> people sleeping in their beds.
> You'd like to come up soft on tiptoe,
> put a bullet in their heads.
> Go downstairs and get a sandwich,
> pop a beer and turn on the news,
> put your feet up, get the phone book,
> call her and say, You got the blues?
> I got 'em too, hey come on over,
> no one home but me these days,
> just like you, let's burn their albums,
> warm our hearts around the blaze. (368)

Thompson complains that Falls' poetry is "sick," commenting on Falls' psychopathology, and not for the first time. Falls responds, "It's not sick if it's from the heart," as if sincerity were the important thing in writing. With dramatic irony, Falls claims his poem is "from the heart," because his attitude toward murder for entertainment lacks compassion; he enjoys flaunting the social values of the mass of humanity.

Later Clarence Meadows devours the hearts of both hit men in a revenge ritual that he read about in the popular media. He catches Falls and Thompson leaving the Buddhist temple and interprets their nakedness as a "signal of his justification," but perhaps it is simply poetic justice (423). The hit men have been referred to throughout as "the pigmen" because they pose as wild pig hunters; the recounting of the fairytale, "Snow White," in which the huntsman presents the heart of a wild boar as proof that he has killed Snow White, resounds with these incidents; later Janis Joplin's recording of "Piece of My Heart" is played at the wedding of the man who did kill Meadows' friend. These

and other references throughout the narrative allude to the symbolic and literal meanings of 'heart,' an organic metaphor for life, love, and empathy, here used with the sinister irony of gothic literalization (see below).

Meadows has developed a fascination for evisceration, probably due to the trauma he experienced in Lebanon. During a sniper attack, Clarence Meadows was wounded by five bullets and managed to kill six snipers; he was the only survivor in his party. He continues to dream about the event:

> Somebody threw mud at Tom Rule's head. Then the back of his head came off. In life he'd grabbed the big L-60 as more bullets hit the jeep. He'd shouted orders that he be left behind, and moved, *as if in a dream*, firing rapid bursts, toward the orange barrel-flashes and flowery sprays of ignited cordite erupting from the base of a hedge on a dirt knoll before a gutted building. In the dream he just walked empty handed toward these innumerable little flares shouting numbers and foreign words--enraged because he thought if he could only make himself clear, he could change the situation--and in the dream, as he had in life, he felt each bullet hit him. In life the bullets hadn't mattered. But in the dream it terrified him to feel his body opening up and the air and dust touching parts inside that should always have been sealed off. (178)

One bullet in particular speaks to Meadows as it passes through his body: "The fourth (bullet) had hit his left seventh rib, spun alongside his heart without touching it and torn around inside his right lung before flying up out of his shoulder--he'd heard it whisper a word as it came up past his ear" (179). Other bullets "danced" through Meadows' insides on their trajectories, and each one is

documented in detail. "At the moment of killing," Meadows feels dissociated from himself; he becomes machine-like in his ability to kill efficiently, as if the word the bullet spoke to him was an incantation or a curse. Nelson claims that Meadows "does everything with a vacant [dissociated] look" (32). He retains the outward signs of his trauma, the writing of the bullets across his abdomen, in the form of scars. Later, speaking to Merton the policeman, Meadows claims that "You represent authority, and I'm mostly unauthorized" (340). But Meadows is authorized to commit murder--authorized by the weapon that traumatized him.

Trauma makes Meadows relive this event repeatedly, in his dreams, although as time passes the dreams become less frequent; memory operates on a principle of negative feedback, each successive iteration acting as an attenuation of affect in a healing process. On this occasion it is the smell of a slaughterhouse that triggers Meadows' traumatic memory. Meadows exemplifies the traumatic theory of serial crime, in which the repetitive violence is an attempt to gain control over the traumatic moment in the manner of Little Ernst in Freud's account of the *fort-da* game (Seltzer *Death and Life* 65-6).

Freud describes how his little grandson deals with separation anxiety when his mother goes out for the evening. The child has a toy made from a spool with string attached; he tosses the spool over the rail of his crib, out of sight, and then pulls it back in again. He puts words to the activity, "fort" when the spool is out of sight, and "da" when it is visible. The child repeats this activity over and over again, and gains satisfaction from his control of the object. The spool is a transitional object, representing the mother, and the child empowers himself by representing her presence/absence. Freud draws an

analogy between this act of representation on the part of the infant and the artist's act of representation as an act of empowerment over the object of desire. The repetition compulsion is an attempt to gain control of the traumatic event, in Little Ernst's case, the traumatic wounding of separation, in Meadows' case, the traumatic wounding of war. Meadows repeats the wounding of evisceration on others in order to gain control over his fear. Seltzer describes the fort-da game as "repetition as a means of retroactive mastery by way of the conversion of an unpleasurable passivity into a pleasurable activity" (*Death and Life* 66). Meadows identifies with the aggressor in his wounding, "a killing machine," and becomes the instrument by which others are eviscerated.

Meadows was decorated for his heroism, but now the police believe that Meadows has killed two drug-dealers and burned their bodies; however, they have not been able to prove it. When Meadows mistakenly believes that the two hit men have killed Billy, he avenges his friend by killing the hit men and roasting their hearts on a spit, cannibalizing them without any noticeable ill effects from the breaking of this powerful social taboo. Feedback in the media plays some role in this behaviour: Meadows had read about this revenge ritual somewhere and, technically, becomes a "copy-cat killer."

In his dream, Meadows shouts numbers and words as he walks toward the snipers. That Meadows feels that numbers and words should be enough to eliminate killing suggests the possibility of negative feedback in the bureaucracy of control, here the military, or perhaps in the media. According to the popular theory, media descriptions of violence provoke more violence, which would indicate that positive feedback is in effect. Seltzer discusses "primary identification or primary mimesis" as the process by which media

representations are assumed as a subject's identity and questions how passive witnessing and violence "fit together":

> It is just this radical uncertainty between repetition and representation--between the passive action of acting addictively and serially and the active passivity of deriving identity from repeated processes of identification--that such an account begins to make visible. (95)

Possibly, witnessing repeated crimes (or witnessing violent representations in the popular media, whether in news reports, documentaries, or movies) could restructure a subject's unconscious: for example, if Thompson spends enough time with Falls, he will become more like him and may begin to accept Falls' second verse as an acceptable addition to his song. Seltzer describes "the double-logic of the subject," the process of primary identification that creates the subject, followed by the repression of the memory of the primary process (*Death and Life* 66-7). What Seltzer captures in this account could be the sense of the strange loop in the processes of subjectivity; the most powerful processes of identification and representation seem to defy logic, which is exactly what makes them so powerful, in fact, irresistible.

Seltzer discusses the "mimetic compulsion" found at all levels of life, and developed most thoroughly in the study of insects. The chameleon, the stick insect, the *femme fatale* firefly that mimics the flashing pattern of another species in order to deceive the latter when it is hungry, all hold a peculiar fascination for the human subject. The Australian orchid that mimics the pheromones of a female wasp in order to attract a pollinator illustrates the universality of mimesis as an instinct found in plants as well as in animals. In

chaotics, the part in self-similar structures naturally resembles the whole, just as an animal tends to blend in with its environment.

The human subject tends to blend in with its cultural environment; in *Already Dead*, characters are self-similar parts in the whole of society in that they resemble machines in techno-culture, or that they identify with media representations. However, there is a motif of parts that do not belong or of absent parts; the Mercedes that Meadows drives back from San Francisco for Billy has the wrong dipstick, allowing oil to spray all over the engine compartment; Billy's old Winchester rifle is missing a part that "got away somewhere." Mismatched parts or incomplete machines correspond with characters who are dysfunctional, crazy, who "have a screw loose," like Billy with his schizophrenia or Frankheimer with his addictions and delusions.

When Meadows' friend William Fairchild is murdered, Meadows takes Billy's old Winchester rifle (circa 1898), breaks it down, cleans it, and reassembles the weapon: "The machine squeaked and whispered, giving up its rusty inward pieces. . . . It wasn't entire in its parts--the finger lever pin stop screw had gotten away somewhere" (341). The weapon has a life of its own, an uncanny animation, and Meadows thinks about his friend: "Right about now they were dealing similarly with Billy at the morgue in Ukiah. Those buzzing circular bone blades. Talking softly into a tape recorder's microphone. . . . By now they'd probably dropped the parts in a bag to be dropped in a hole." Meadows' wartime experience with technology and violence has taught him that the boundary between the animate and the inanimate is an uncanny one. Seltzer suggests that,

> The commutability of word counts and body counts provides one register of the way in which the life process and the technological process have come to indicate each other in machine culture: one meaning passes over to the other and feeds on it. (40)

The disembodied voice on the tape recorder corresponds to the uncanny voice of the rifle complaining as it is disarticulated. The sense of animation in the machine, here in the part that willfully "got away," and in the voice that "squeaked and whispered," indicates an exchange of characteristics between the organic and the machinic: human beings in machine culture are "already dead," while machines have an uncanny life. But there is also a sense of commodification that applies as easily to human beings as to any machine or animal.

This commodification is pervasive in consumer culture; one hit man comments of Nelson, "He was meat anyway, and he knew it," as if a human being could be reduced to its most basic marketable parts (366). The passage describing Meadows' fantasy of an autopsy hearkens back to a description of Billy with a chain saw butchering a road-killed doe, but also to Meadows' surgery after being wounded and the surgeon's documentation of bullet trajectories. The disarticulation of bodies and machines is an entropic process that complements the drive toward greater complexity, but in the gothic, the value-laden ideology in entropy suggests something demonic at work. Seltzer refers to the "suturings of the life process and the machine process, of erotics and mechanics" that occurs in "machine culture" (77); the bullet that wrote its signature on Meadows's body and whispered in his ear embodies a penetrating, demonic, technological presence that seduces humankind.

The description of the antique Winchester rifle makes an historical allusion to industrial developments of the late nineteenth century associated with repetition in mass production. Sarah Winchester, who inherited the proceeds from the weaponry business of her father-in-law, felt guilt over the numbers of people who had been killed by the family's product, "'the gun that won the West' and that standardized both mechanical reproducibility and repetitive violence" (Seltzer *Death and Life* 202). The Winchester was the first mass-produced rifle, also known as "the widowmaker," because vast numbers of Indians and white men were killed by this prolific weapon. A spirit channeler instructed Sarah that she must make additions to her home in order to satisfy the spirits of the dead, so she began an endless, compulsive series of constructions as a symbolic compensation to the domestic order that had been disrupted by violence on the frontier, and she was required to move to California, the last remnant of 'frontier,' for this project. The house took the form of a labyrinth of stairways and passages that led nowhere, unmotivated by functionality. The compulsive building by Sarah Winchester was a frenetic attempt to ward off social entropy in the form of repetitive killing. The Winchester repeating rifle was a forerunner of the fully automatic weapon used by Meadows in Lebanon, which eliminates the necessity of reloading after each shot and makes repetitive killing effortless to the point of becoming mass killing.

Unlike Meadows, who claims he did not murder his business partners, Van Ness has developed an insatiable appetite for repetitive killing. Van Ness kills for gain, but he finds that he enjoys killing immensely because of the sense of empowerment he feels during the act of murder. He relates serial killing to machinic repetition:

> He stood for hours at the shooting galleries, always his favorite thing, blasting away at ducks and jungle animals who lurched happily into his sights and disappeared and then turned up again, identically reincarnated. Now he saw why, as a boy, he'd felt called to such places. It amused him to identify these contraptions as important teachers and this completely mechanised region as the birthplace of his life's philosophy: everything happens again and again . . . (85).

Van Ness views his compulsion for repetitive murder as part of the universal design. No one every really dies, yet in this "mechanised region" of mechanical repetition no one is every really alive, either. Nelson, on the other hand, deeply regrets having Van Ness kill Winona, and sublimates his murderous impulses into narrative.

As a *manqué* serial killer, Nelson Fairchild wishes a number of people dead, but he prefers to enlist another to commit the murders. He easily convinces Karl Van Ness, a man whose life he has just saved, to murder his wife. In considering his estrangement from his wife Winona, he alienates and dehumanizes her by categorizing her as porcine:

> Winona became hateful shortly after beginning a friendship with Yvonne. Her "cute" quality took on a piggish cast. By subtle slanting her cuteness became oinky. She didn't gain weight. But her vision became near and small and the space between her eyes narrowed in self-absorption. She added to her vocabulary a contemptuous snorting sound and used it on me ceaselessly, claiming she wasn't aware of it. (44)

In categorizing his wife in this way, Nelson conveys a sense that people are commodified and disposable much in the way of barnyard animals, adding to the suggestion of mass slaughter evoked by repeated predatory motifs throughout the narrative, especially the stench of the slaughterhouse encountered by Meadows. Nelson also hates his wife's "fat ugly" horse, "Red," who has worms and needs medication, a biomechanical entity almost as elderly as the mechanical entity, Nelson's Porsche, which Frankheimer notes sounds as though it is "in need of potent ministrations." However, Nelson is strongly identified with his Porsche in what could be termed an erotic way: he notes that his hands smell of his mistress and the Porsche's leather. He also owns a handgun, "a .357 magnum, the original Smith & Wesson issue, with a serial number in the low four thousands, a collector's item." Nelson likes to think of himself as "a cool guy or even perhaps a cowpoke with [his] .357 and [his] 356--[his] Smith & Wesson and [his] Porsche" (47). This account by Nelson intimates a correspondence between serial killing and the collecting of consumer items or products, and later, of compulsive writing. It also illustrates the large numbers of mass-produced weapons when a number "in the low four thousands" is considered a rarity.

Similarly, Meadows thinks of people who work at regular jobs as "the sheep," the mass of commodified humanity and the statistical persons who fit neatly into predetermined categories. By contrast, there is a character known as the "Sheep Queen" because she harbours a flock with no intention of eating them or of selling the sheep for profit. Frankheimer notes that she also takes in waifs: "The Sheep Queen made a practice of rescuing these types and taking them in and looking after them until they died or went completely crazy" (19).

These individuals have organic associations and would be termed dysfunctional as cogs in the social machinery. These marginalized characters, each in her/his own way and as best they can, make a point of resisting commodification, but the boundaries are problematized to the point of dissolution in demonstrating the universality of commodification. The 'system' in *Gravity's Rainbow* exploits everything: Johnston suggests that the rocket fired at the end of World War II, appearing over a Los Angeles movie theater in 1972, indicates that the technologies developed during the war will become the basis for "a new technopolitical world order" (*Information Multiplicity* 62). In *Already Dead*, this new order resembles a war in its nihilistic consumption of human beings. Characters are portrayed in terms of commodifiable animals or of machines.

Nelson knows that hit men wish to slaughter him like a barnyard animal, and prefers to think of himself in the terms of the Bushido warrior as "already dead": one should bury oneself before going to war and in that way avoid the fear of death, but this resembles Meadows' dissociative state. Seltzer reminds us of Wiener's naming of cybernetics, from the Greek "*kubernetes*," the steersman, the cybernetic feedback mechanism that is signified by the *Schwartzgerät* in *Gravity's Rainbow*. Seltzer refers to the "dead steersman," the control systems in machine culture, "the living system of the body-machine complex" ("Serial Killers I" 111). Interestingly, the men who murder or fantasize violence in *Already Dead* are compulsive drivers, as well as owners of weapons. The car is a kind of prosthesis that these men admire, and these men do not like horses: they want a technological prosthetic, not an organic one, yet there is a conflation between the organic and the machinic here as well. Navarro's Firebird is described as "muscular," suggesting the masculine

attributes of the equine transmuted to the vehicle; he comments that he dislikes anything that can smell his fear. The hit men drive a Silverado, a large truck, the commercial for which shows cowboys abandoning their horses for the vehicle, with the vehicle then "running" with the herd. In machine culture, then, the mindlessly repetitive machine replaces the organic instinctive animal, but the swapping of characteristics and meanings between the organic and the machinic erases the boundaries and allows for commodification to occur.

Frankheimer has been consumed by machine culture to a lesser degree than Nelson Fairchild. (His nickname is Frankenstein, not because he is six feet nine inches tall, but because he introduced Van Ness to Nietzsche, thus creating a monster: Van Ness has taken certain nihilistic propositions in *Thus Spake Zarathustra* too literally.) Van Ness compares Frankheimer to a horse, saying that women are "drawn to him exactly as they are drawn to horses standing in the sun," because of his muscle-rippling beauty. He has a tiny forge on which he achieves "a private and personal Iron Age," not caring about "*products, forms,*" but only the physical activity of working metal, in which attitude he provides a contrast with Nelson's avid consumerism and collector's activities (*AD* 16). Frankheimer does not care what object, if any, comes about through his metal work, as if the metal decides what it wants to be and he is merely the vehicle of its becoming. He is in the process of disassembling his house, his hot tub, and his truck, because he senses the demonic within things (which suggests the opposite approach to that of Sarah Winchester's compulsive construction and to Nelson Fairchild's erotic identification with machines, but resembles Jack Gladney's frantic purge in *White Noise*). Frankheimer eroticizes his repetitive violence, however, that which occurs between the hammer and

the anvil, as if the repetition, not the product, were the important thing. In this activity, he engages in repetition but resists commodification.

As with *Gravity's Rainbow*, *Already Dead* represents another level, a spirit realm, of which humans are infrequently aware in their absorption with worldly struggle. Frankheimer believes that his long-time associate, Karl Van Ness, has died and been replaced by a demonic entity. Frankheimer explains the process of bifurcation on a spiritual level when "walk-ins" take over the bodies of the recently dead:

> "Sometimes a person dies, and before the soul's hardly out, another one walks in. A wandering soul. A sick soul, too weak to make it across the realms. A psychotic soul, referred to in most mythologies as a demon. It takes over completely. Sucks at the vital energy. It's Van Ness's body, and Van Ness's brain, even Van Ness's ideas. But it's not Van Ness. When people do evil things repeatedly without compunction, man, that ain't people. That's demons." (*Already Dead* 274)

Frankheimer believes that human beings have a superego, and that serial killers cannot kill compulsively and still be fully human, and therefore must be demonic. Van Ness is another taboo-breaker, one who feels compelled to enact every nihilistic impulse, even the self-destructive ones, in the belief that this gives him freedom. After he kills Billy Fairchild, he puts the gun in his own mouth and pulls the trigger, but it misfires. Taboo breaking for Van Ness signifies an attempt to be free of the habitual behavioural loops that have been conditioned in the individual by society.

On a spiritual level also, Nelson Fairchild represents feedback iterations: according to the local channeler he consulted, he is doomed to be murdered in each successive lifetime. In his present lifetime, he engages in repetitive feedback loops and cannot escape. He is addicted to driving, drinking, and consuming drugs; in this case, positive feedback operates because Nelson's drinking increases over time:

> One of the most important discoveries of chaology has been that positive feedback can cause complex, even chaotic behaviour concealed inside orderly systems to unfold, and that negative feedback can grow inside an otherwise chaotic system, suddenly organizing it and making it stable. (Briggs 119)

Nelson's life becomes increasingly unstable and spirals out of control when he bungles a drug deal with a drug lord who hires hit men to collect a debt. The bifurcations and loops of highways on the Northern California coast where Nelson drives his Porsche, with their switchbacks and hairpin turns, set the pattern for Nelson's life; given the option of avoiding death by leaving Northern California, Nelson chooses to stay, unable to remove himself from his rut even to save his life. As a firstborn son, Nelson feels a sense of entitlement, and he is willing to arrange the murders of those who interfere in his inheritance of his father's property, which includes a thirty-square-mile tract of primeval rain forest. When his wife is murdered, he deeply regrets his plan and turns, instead, to writing: because the representation is the death of the thing, narrative serves as a substitute for murder.

Seltzer examines the ways in which ritual murder suggests a literalization of the representation as the death of the thing. He refers to Lacan in a

discussion of "psychotic literalization: the elimination of the barrier between fantasy, imagination, and reality; the realization of language to the letter" (*Death and Life* 147). Metaphorically, "to eat one's heart out" means to regret, but Meadows enforces regret for the death of his friend with a literal eating of hearts. The instinctive knowledge of the power of representation is illustrated in the superstitious dread of the likeness that can steal the soul of a human being. For Nelson Fairchild, finishing his journal with his own blood as his life ebbs away literalizes representation as death.

Nelson's transformation from murderer to writer is followed by Navarro's transformation from detective to reader. Early in the narrative, Navarro wonders why the local residents insist on writing him letters and leaving notes on his windshield; "Did he look like a scholar?" (65). The final passages find Navarro with a new attitude, holding Nelson's journal in his hands: "It was his. It spoke the language. . . . If it wasn't for what he held in his hands he'd be lost" (435). What this change in Navarro illustrates is that, just as Nelson gives up plotting murder and takes up plotting narrative, Navarro sublimates his repetitive violence into compulsive reading; the reader and the writer become mirror images of each other.

The allusion to the fairytale "Snow White" also suggests the motif of the mirror image commonly found in the gothic genre. In "Snow White," the witch sees her opposite, a pure innocent girl, in the mirror. The mirror image effect is an aspect of bifurcation. On the physical level, the concept of twinning is a well-known genetic principle, but the mirror-image effect also exists on the genetic level. A "palindrome" in the genetic code is "a DNA sequence that is the same when one strand is read left to right and the other is read right to left" (Suzuki &

Knudtson 358); this effect would be the equivalent of opening a book and finding that the pages are mirror images of each other. The body and the text share the same basic processes of codification, like iterations of a similar informational pattern. As Seltzer asserts, "Serial killing inhabits the information society, where nothing could be less certain than the line between bodies of information and other kinds of bodies" (*Death and Life* 17). Seltzer is not a chaologist, yet this statement suggests the universality found in informational codes: "what surfaces is the intimacy between the life process and the information process--and the gothicization, or rendering uncanny, of both" (41). What the human being finds uncanny is the illusion of an intelligence in the design, the suggestion of a presence like Weiner's Manichean demon (see Ch 1).

The universal patterns found in informational codes often evoke a superstitious dread in the human observer, and the uncanny similarity between self and other, as a feature of the thriller, illustrates this principle (Waugh 85). The lawman is portrayed as a mirror-image of the criminal in thrillers from Poe to Thomas Harris, and this resemblance allows him insight into the criminal mind. In *Red Dragon* and *The Silence of the Lambs*, the FBI agent Graham Crawford is tormented with self-doubt by his ability to understand the serial killers Francis Dolarhyde and Hannibal Lecter, as if he is tainted by his knowledge or possesses the same innate criminal potential, though his ability allows him to predict behaviour in order to capture the criminal and reinstate the social order. Navarro is more like the criminal than Crawford, however; he shares the identification with the machine that the killers, Thomson, Falls, and

Meadows, and the *manqué* serial murderer, Fairchild, exhibit, and like them, engages in repetitive violence both in his work and in his personal life.

Characters in *Already Dead* illustrate bifurcation on a subjective level in the compulsive feedback iterations of human behaviour and in the mimetic compulsion of the subject in relation to the mass media, by which the individual becomes an iteration within the larger pattern of culture. These qualities are cybernetic functions, illustrating machine-like repetitive, deterministic behaviour. The fondness of male characters for their vehicles and weapons indicates a prosthetic function in which the individual identifies with the machine; in *Neuromancer*, the vehicle is the cyberspace deck, but Molly Millions uses weapons as prosthetics, questioning the boundaries between the body and the machine: her handgun and her hands are both high-tech weapons. In *Gravity's Rainbow*, the rocket combines features of the weapon and the vehicle, and at the same time signifies a weapon of mass destruction that characters like Blicero, the perverted fascist, fetishize.

Neuromancer, *White Noise*, *Gravity's Rainbow*, and *Already Dead* figure similar tensions in representing human identity in societies dominated by technology. As part of technological society, the human subject becomes part of the machine, defines itself in relation to the machine, and fails to define the boundary between the organic and the machinic, which Seltzer describes as a suturation of or miscegenation between bodies and machines. The individual is configured out of parts, like a machine, and is valued according to its functionality. The universality principle in chaotics, when applied to information, supports this observation that the organic and the machinic are parts of the same whole, or at least the same informational processes can be

observed in both. From the perspective of the human in machine culture, however, this universality of processes is misapprehended as the design of an uncanny intelligence, similar to Wiener's Manichean demon. Seltzer refers to this cybernetic principle as "the dead steersman," a cybernetic process that governs the inner workings of both the organic and the machinic. The observation that humans in machine culture become machinelike and amoral bodes social entropy, a loss of differentiation between humans and machines, and a devolution in the social order. But if the social order functions as a dissipative structure, a state of maximum entropy heralds a leap to a new order within the social system, perhaps an order in which the boundary between the organic and the machinic is erased forever.

Iteration and Articulation:

Complexity in the Narrative Body

Prigogine's model of the dissipative structure as a system in which normal deterministic processes can be interrupted by periods of stochastic behaviour, at which time any slight perturbation may cause a reorganization at a new level of complexity, when applied to the novel as a complex dynamical system, evokes a richness and an elegance unparalleled by more reductive models of narrative. The technological novel contains representations of the feedback loop, a pattern that is found in thermodynamics, cybernetics, information theory, and chaos theory. In the dissipative structure, the feedback loop encompasses a bifurcation point in which maximum entropy is reached, and sudden spontaneous reorganization may occur. *White Noise*, *Already Dead*, *Neuromancer*, and *Gravity's Rainbow* illustrate these dissipative processes in their narrative structures. Cause and effect plotting is disrupted by stochastic periods in which events become disordered and unpredictable. Narrative tension may increase to a point at which a singularity is reached and time seems to stand still. Moreover, a character may experience a period of dissolution after which a spontaneous reorganization, otherwise known as an epiphany, occurs in the character's psyche. A new feedback loop begins at this point of reorganization.

The feedback loop is a process that occurs over time. In narrative, time produces tension through the vehicle of illusory motion. In fact, all events exist simultaneously in narrative, with the linear story pieced together from fragments with the use of analepsis and prolepsis, possibly looping backward or forward in cycles and repetitions, or in reiterations by different voices. The process

articulates iterations like parts of speech, like mechanical parts that work together in a machine, or like biomechanical parts which are jointed to allow motion in an organic body. In *White Noise*, *Neuromancer*, *Gravity's Rainbow*, and *Already Dead*, spatial representations in narrative are used to suggest the recursivity of processes and the universality of informational codes.

Freytag's Pyramid figures the conventional narrative structure, whether, for example, of an adventure story or a novel of manners, with exposition, the introduction of conflict, rising action, complication, and dénouement (Martin 81). In this respect, the traditional narrative is relatively predictable and fits the description of a deterministic system, especially in the case of formula fiction which, by definition, adheres to a predetermined structure, and during the reading of which an experienced reader can often predict the plot developments. Postmodern narratives, however, rarely resolve into a dénouement in which all questions are answered or all of the knots of the complication are untied, although few are entirely aleatory. Structure is important in narrative; a framework is required within which to create the unexpected or to depart meaningfully from convention; complete randomness is unintelligible. The condition of maximum entropy would obtain in a novel in which no patterns can be found; accordingly, narratives vary by their degree of departure from a standard of convention.

In Chapter 3, I wish to affirm that the novel can take the form of a dissipative structure. The feedback iteration constitutes an important pattern that can demonstrate either deterministic repetition or repetition with variation, as in the chaotic model. The Greek myth of eternal return and the Newtonian paradigm of the reversible trajectory have in common the belief that events are

fixed. In this case, although one model is linear and the other curvilinear, events occur repeatedly. In the chaotic model, however, events never repeat exactly; variations on a theme constitute the norm and an exact repetition probably indicates an error in measurement. I intend to show that the novels under consideration are structured on the pattern of the feedback loop, and that periods of predictable cause-and-effect plotting are interrupted by stochastic events.

Frank Lentricchia describes *White Noise* as an "antinarrative narrative" or "counternarrative," because Jack Gladney has a fear of causes and effects, and a fear of time (104). Plots evoke paranoia in Jack, who has a history with women who empower themselves socially by plotting, who pit friends against each other for entertainment, and who work for the "intelligence community." Jack also fears the teleological implications of "plot," because endings signify death; the concept of decline or dénouement has frightening implications for one who fears death. Jack takes refuge in Jamesonian/Lacanian schizophrenia (see Ch 2), focussing on moments in time, "signature moments of Jack as artist, working in the mode of Antonioni, whose camera eye . . . repeatedly creates painterly and photographic effects, infinitesimally frozen frames, an antinarrative cinema dedicated like Jack's antinarrative narrative to the disquieting image removed from the stream of time, a thing of beauty forever whose power to mesmerize is owed to its menacing context, the story that moves silently underground" (Lentricchia 104). Jack wishes to focus on the singular moment, to tune out time and its ravages, to tune out the mass media, and focus on culturally/historically intense scenes, and to savour a sense of timelessness. For Jack, the image offers a brief respite from the relentless onward flow of life.

Jack's finest moment occurs, according to Lentricchia, when Jack exhumes the putrescent sack of refuse in search of Dylar: "the oozing cube of garbage sits there 'like an ironic modern sculpture, massive, squat, mocking'" (105). Lentricchia notes the cadences of descriptive prose resembling Keats' "Ode on a Grecian Urn," and the irony that postmodern consumer culture has produced this waste instead of an artifact on the aesthetic level of Greek art, which irony Lentricchia describes as "delightfully grotesque." Entropically, the oozing cube functions as an index to the white noise of its creator, the throbbing trash compactor in the kitchen, an icon of technology and consumer culture, mangling and compressing the packaging from the supermarket, including everything from banana skins to flip-top rings. The lyrical moment for Jack interrupts his postmodern isolation and connects him, "as the individual talent makes contact with tradition" (Lentricchia 106). As an educated man, Jack's narration adds a commentary on the mass media surrounding his consciousness as he analyses and makes connections, and yet, insidiously, he is consumed by mass culture: the most startling structural principle of the narration is the constant punctuation by decontextualized media slogans:

> How subtly we shifted emotions, found shadings, using the scantest movement of our arms, our loins, the slightest intake of breath, to reach agreement on our fear, to advance our competition, to assert our root desires against the chaos in our souls.
>
> Leaded, unleaded, super unleaded.

> We lay naked after love, wet and gleaming. I pulled the covers up over us. We spoke in drowsy whispers for a while. The radio came on. (199)

The mass media, as white noise, insert themselves into the most intimate human spaces and the most organic moments. The communication between Jack and Babette is somewhat trivialized, like their fear, by noise on the communications line.

Jack is disturbed to note Babette's new tendency to be consumed by sights, as "she turned to gaze at snowfalls, sunsets or parked cars in a sculptured and eternal way," yet this is what Jack has always done (*White Noise* 185). His appreciation for Babette was focussed on her difference, as a "foster-child of silence and slow time" and "a friend to man"; in these qualities, she resembles the work of art, the Grecian urn (Keats 189). Jack has a tendency to objectify Babette, to reduce her to someone whose purpose is to be maternal and unchanging, which he refers to as "the point of Babette"; she is not supposed to become depressed, sarcastic, or unpredictable; her purpose in life is to fulfill his needs, not to suffer from similar ills. Unlike the couple on the Grecian urn who are suspended in time, who cannot satisfy their desire and yet need not fear entropy, Jack and Babette are changing, and the cycle of consumption continues, even accelerates.

Critics have noted the presence of a piece of string in the garbage under investigation, the description of which suggests an allusion to plot structure and interpretation:

> There was a long piece of twine that contained a series of knots and loops. It seemed at first a random construction. Looking more

> closely I thought I detected a complex relationship between the size of the loops, the degree of the knots (single or double) and the intervals between the knots with loops and freestanding knots. Some kind of occult geometry or symbolic festoon of obsessions. (*White Noise* 258-9)

The reading process requires a search for patterns, and a mind conditioned to search for such patterns can find them almost anywhere. Resisting the very idea of plots, Jack still cannot help finding them in the abstract, though he avoids them in his life where possible. The knot is a traditional figuration of the complication in narrative, a mystery that must be unraveled or a magical tie that binds. Knots and loops can be found decorating the pages of ancient texts, especially *The Book of Kells* in the Celtic tradition. Loops suggest repetition in narrative events, feedback iterations, here occurring on multiple levels suggested by the different sizes of the loops.

Tom LeClair asserts that the movements of characters from place to place, to Iron City and back, represent loops, as well as their habits as consumers, buying, consuming, discarding, and buying again. LeClair states that, "Like other systems novelists, DeLillo recycles American waste into art to warn against entropy, both thermodynamic and informational" (*In the Loop* 212). The assertion that waste can be recycled into art recalls the memorable tampon within a banana skin in Jack's hoard of refuse, and suggests narrative embedding of the unexpected kind; though it is entirely reasonable to expect to find a banana inside a banana skin, or, alternatively, nothing, the presence of a tampon suggests a breakdown of the expected order, an entropic miscegenation of waste, or the point of maximum entropy in a narrative.

The loop as an emblem of non-linear fractal iteration in a narrative contrasts with the more traditional metaphor of multiple strands being pulled together and woven into a linear pattern, text as textile, though both can suggest complexity. For example, in Gibson's *Count Zero*, four separate plot lines converge and are woven into a fabric in which the relevance of each strand to the other resonates analeptically: the obsessive search for patterns is rewarded when these strands converge and the reader's hypothesis proven or disproven. Similarly, mathematical convergence occurs when feedback iterations progressively approach a particular integer (Peitgen 265). In *Mona Lisa Overdrive*, five separate strands gradually converge as the narrative progresses. In *Gravity's Rainbow*, dozens of strands are interwoven, and critics have questioned whether these elements ever cohere into an intelligible whole. In the interest of countering cause and effect plotting, Pynchon wishes to represent an overdetermined narrative in which multiple variables impinge on the outcome. Accordingly, Pynchon frequently refers to the maze and the labyrinth as counter-linear models.

In Celtic lore, the braid represents multiple strands woven together with great complexity or a labyrinth with many turns, an apt figure for a narrative with many story lines or unpredictable events in the plotting. The labyrinth may take a linear or a nonlinear form; John Briggs describes a carved stone pillar representing a non-linear maze:

> The spiral of life, as this pattern might be called, appears on Stone Age structures around the world. This carving is from Sligo, Ireland, dated at about 2500 B.C. By intuition or some ancient religion-science, the inscribers of these marks seem to have

> grasped that the spiral pattern symbolizes activity in the life-giving boundary between order and chaos. Anthropologists say the spiral is the ancient symbol for the labyrinth, the twisted pathway for a journey to the core of being. (113)

This design represents infinity with a bifurcation at the boundary point and "at the core of being," and therefore demonstrates a different cosmological viewpoint from the finite linear form of Freytag's Pyramid, with its point of origin and end point plotted on a Cartesian grid. The labyrinth also represents informational entropy in the form of the unknown/unknowable: the curving pathway or the right-angle turn obscures what lies ahead. A frequent motif in cinema is the boxwood hedge forming a linear maze with right-angle turns that obscure the view (a motif in *Orlando* and *The Shining*, for example) and suggesting the limitations upon the characters' ability to predict the future. Moreover, the concept of infinity presents a challenge to the human intellect which results in assumptions and conventions regarding originary moments and teleological moments.

Jack Gladney comments on the teleological nature of traditional narrative: "'All plots move in one direction,' I told her grimly" (199); "All plots tend to move deathward," he tells his students (26). Jack feels that there is some inalienable connection between plots and the death instinct. Thermodynamic theory suggests that time is irreversible, that as energy is consumed, processes slow and grind to a halt. But Jack fears "some deft acceleration," a loss of control, and in a sense this is what happens when Jack is exposed to the deadly cloud of chemicals for two-and-a-half minutes. Technology ("lust removed from nature") seems to yearn deathward, and desiring lends it force. Jack is hurtled

deathward in his mind, though the prognosis of his medical condition seems to indicate no definite change in his lifespan. Jack, in his fifties, has absorbed a deadly chemical with a thirty-year lifespan in the human body. If he can outlive the Nyodene Derivative, theoretically, he will be fine (in his eighties). Jack is not any worse off than before, except that now the cause of his inevitable death has a name. On the other hand, none of it will matter if he is killed in a car crash tomorrow.

Technology and death have a long history of association in narrative. In *Slaughterhouse-Five*, by Kurt Vonnegut Jr., Billy Pilgrim indulges in a fantasy in which time and the harmful effects of technology in wartime are reversed:

> American planes, full of holes and wounded men and corpses took off backwards from an airfield in England. Over France, a few German fighter planes flew at them backwards, sucked bullets and shell fragments from some of the planes and crewmen. . . . When the bombers got back to their base, the steel cylinders were taken from the racks and shipped back to the United States of America, where factories were operating night and day, dismantling the cylinders, separating the dangerous contents into minerals. Touchingly, it was mainly women who did this work. The minerals were then shipped to specialists in remote areas. It was their business to put them into the ground, to hide them cleverly, so they would never hurt anybody ever again. (75)

In *Slaughterhouse-Five*, the Tralfamadorians present an alien perspective on time. The Tralfamadorian concept of time and narrative would please Jack, because it resembles the luminous moments that Jack experiences, producing

"an image of life that is beautiful and surprising and deep. There is no beginning, no middle, no end, no suspense, no moral, no causes, no effects. What we love in our books are the depths of many marvelous moments seen all at one time" (*S-F* 88). Billy keeps a polished amber paperweight on his desk, one that contains three ladybugs, suggesting the past, the present, and the future, all frozen in the moment, frozen in luminous stillness. As a determinist, Billy feels that he cannot change the past, the present, or the future. Similarly, Jack feels that if he avoids trying to control, to plot, to make connections, to find patterns, then time will not turn on him, his children will not leave, Wilder will not learn to speak, Babette will not change, and he will not die.

Death is personified in the unlikely form of Vernon Dickey, Babette's father, who is suffering from a myriad of symptoms boding terminal illness: a limp, a cough, insomnia, "the shakes," sudden unexplained weight loss (*White Noise* 253). He appears unexpectedly in the night, "*inserted* there for some purpose" in the back yard, appearing as "Death, or Death's errand-runner, a hollow-eyed technician from the plague era" (243). Jack goes to greet him, his copy of *Mein Kampf* held against his body for reassurance. (The book probably represents, for Jack, the reassurance of becoming a 'killer' and avoiding being a 'dier.') Jack is relieved to find that the ominous figure in the darkness is merely his father-in-law, but Vernon's parting gift is a German-made handgun, also an emblem of death. Jack does not want the weapon and tries to return it, saying, "We don't want guns in our little town" (254). Vernon counters, "It's not what you want that matters." Vernon believes in the inevitability of violent confrontation: "It's only a question of time as to when you'll want to use it." Vernon's attitude has a deterministic, even fatalistic, air. According to Vernon,

human nature, the world in which we live, make the technologies of war and weaponry an incontrovertible fact, a social fact that cannot be changed, an absolute truth that must be accepted or the terrible life-shattering consequences of passive naïveté will be suffered. In his characterization of Jack and Vernon (as well as others), DeLillo represents the failings of his fellow Americans.

Jack's avoidance of the necessity to prepare for disaster corresponds to his attitude in the face of fire alarms and chemical spills, here seen in his failure to grasp the significance of the gun:

> "When will I want to use it?"
>
> "Do we live on the same planet? What century is this? . . . I could have been a professional burglar, an escaped con, one of those drifters with a skimpy beard. A wandering killer type that follows the sun. A weekend mass murderer with an office job. Take your choice." (254)

Vernon goes on to advise Jack how to plan for the inevitable home invasion, to plot the logistics and trajectories of attack and defense in his home: "If you have an intruder situation, where will he enter, how will he approach the valuables? If you have a mental, where is he going to come at you from?" (254). These strategies are totally foreign to Jack's way of thinking: Jack believes that disaster occurs only in the lives of those in the lower income brackets. Vernon tells Jack to practice falling to the ground quickly, but Jack has not even broken into a trot in decades; Jack's strategy is to become an immovable mass. As a statistical person, Jack feels safe from tragedies that occur in the lives of those with high-risk statistical profiles.

Jack puzzles over Heinrich's friend Mercator and his plan to challenge death by sitting in a cage with lethal poisonous snakes. Mercator wants to be in *The Guinness Book of World Records*, a statistical position of distinction and fame, a way of becoming unique in mass culture, yet an achievement which is meaningless in any other context. In contrast to the statistical approach to death and tragedy, Murray's view that one may choose to be a killer or a dier seems a less complex and more reassuring position. Vernon's gift of the weapon, a sort of symbolic exchange of responsibility for the protection of Babette, gives Jack the means of trying out the role of aggressor. The gun lends Jack a sense of empowerment:

> A concealed lethal weapon. It was a secret, it was a second life, a second self, a dream, a spell, a plot, a delirium.
>
> German made. (254)

Jack associates German culture with order and control, the ability to keep death at bay with organization and discipline.

The psychological effects of the weapon work on Jack's mind and allow him to do things that he would never have thought of before. In the narrative, the gun, combined with medical evidence of Nyodene Derivative in Jack's bloodstream, and Jack's observation that Babette is changing (speaking differently, like Heinrich, asking abrupt, sarcastic questions [301]), triggers a crisis in the action. These events converge to produce an effect in Jack that brings him to commit crimes. Jack wished to avoid exactly such causes and effects, but the series of events has pushed him to the edge, and Jack reaches a state of maximum entropy, requiring a leap to a new level of organization, as in a dissipative structure.

Jack gets into his neighbours' car, noticing the waste in trash caddies on the dash and seat backs. He itemizes the refuse in an encyclopaedic list as if comparing it with his own trash (having become an aficionado of trash) and comments, "Thus familiarized, I started up the engine, turned on the lights and drove off" (302). He drives lawlessly, running red lights, ignoring a yield sign, and running a toll booth. He turns on the radio when he reaches the urban area of Iron City, a comment on urban isolation; Jack feels lonely in the bleak urban core and needs the radio for company, the reassurance of a human voice. He observes waste areas of abandoned cars, garbage, furniture, and broken glass, a region of urban entropy. His disordered behaviour is paralleled by his heightened awareness of the disorder around him in the form of trash. The radio intrudes into his consciousness with its white noise, as he pursues the embodiment of white noise, Mr. Gray, "a staticky man" (296). Yet rule-breaking and the empowerment of the weapon make Jack feel free, unrepressed, and his rage builds.

During the confrontation with Willie Mink, Jack feels an intensified awareness while concurrently sensing a proliferation of white noise. Mink watches television with the sound off, providing the voice-over; Mink's monologue is identical to the intrusive, viral snippets that have punctuated Jack's awareness throughout the text. Jack seems to be sucked into the vortex of a black hole where the density of information becomes so compressed, so intensified beyond the event horizon, he states, "I could feel the pressure and density of things," and "I saw things new" (304-6). There is a logical paradox inherent in the repetition of this, of continually seeing things anew, and the statement does not resemble Jack's usual manner of speaking or thinking. An

entropic process has affected the linguistic patterns of both Jack and Babette. Similar to the strange loops of Kurt Gödel, and in phrases like, "rushing slowly" and "dense yet transparent," Jack's oxymoronic thoughts share the paradoxical quality of Mink's comments, such as "I envied myself," and, "Dylar failed, reluctantly. But it will definitely come. Maybe now, maybe never" (308).

Jack reiterates his statement about "seeing things new," as well as his plan for stalking and killing Mink. His awareness of falling raindrops and gleaming surfaces is repeated frequently. With each repetition, a slight variation occurs. Jack comments that information rushes toward him "incrementally." These reiterations and increments resemble a fractal design in the narrative pattern, starting each time at a new position in the narrative, like an equation that begins with a new integer on each iteration. The fractal pattern of the Julia Set grows a proliferation of fern-like fronds, the same shape developing on different length scales, beginning in different positions, the tendrils sprouting new tendrils, on and on to infinity (Peitgen 856). These tendrils resemble the repetition with variation found in Jack's reiterated descriptions. There are a number of these, descriptions repeated and slightly changed, conceivably occurring sequentially at different points within a matrix, in this example, the chapter. There is also a sense in which Mandelbrot's model of fluid turbulence resembles this chapter: the repeated and varied descriptions in Jack's thoughts are comparable to the cascading eddies and whirls that occur when water becomes turbulent as it builds up speed approaching a waterfall.

At one point, Mink and Jack engage in a linguistic version of video-feedback:

"You're here for some Dylar, of course."

"Of course. What else?"

"What else? Rid the fear."

"Rid the fear. Clear the grid."

"Clear the grid. That's why they come to me." (*White Noise* 306)

Like two video cameras that mirror each other's images in an embedded progression, Jack and Mink repeat each other's statements and add to them sequentially. The scaling inherent in fractal patterns corresponds to Mink's comment on the effectiveness of Dylar: he suggests that, although Dylar will/may be developed to effectiveness against the fear of death, there will be a corresponding intensification of death itself, death to the second power. "Are you saying death adapts? It eludes our attempts to reason with it?" Jack queries (308). No escape can be found from the infinitude of repetitions, even when the goal is achieved; when the goal is achieved, a new goal must be set. At this point, Jack begins to reiterate his plan yet again, as always describing three bullets to the gut for intensity of pain, as if there is a magic inherent in repetitions. These repetitions and feedback loops begin to resemble the vortex, the spiraling, compressing singularity described by Hawking, a representation of entropy and infinity, "a violence, a smashing intensity" of information (*White Noise* 305).

Jack behaves in a ritualistic way, performing steps in threes, driving past the motel three times, and planning to shoot three bullets. The redundancy in Jack's planning is an attempt to avoid error in the code (Ch 1); things go according to plan until he forgets the third shot and places the gun in Mink's hand, trying to make the shooting look like a suicide. Of course, people who commit suicide never shoot themselves in the gut for maximum pain, however

masochistic they may be; in any case, the authorities would never believe it. Mink responds by shooting Jack in the wrist, and Jack sucks on the wound as if it were a snake bite, indicating that this confrontation with death is the equivalent, in Jack's mind, of Mercator's activities with snakes.

The examination of Jack's mental processes in this chapter, especially his repetitions, bears a relation to entropy and redundancy in the code described by Jeremy Campbell. The more freedom of expression that exists in a language or code, the more risk of error is incurred; a trade-off must be made between freedom and error. Redundancy is the self-healing aspect of the code that insures that error in the message will not destroy the message by rendering it indecipherable. Campbell suggests that English is an excellent code because of its fine balance between context-dependent and context-independent redundancy. When the wrong word is placed in a sentence, quite often the reader does not notice because the error correction, based on context, is automatic (Campbell 118).

While searching for Mink, Jack notices a sign over an office door that reads, "NU MISH BOOT ZUP KO." He admires the entropy of this message, commenting that it is "gibberish but high-quality gibberish" (305). Jack is in "Germantown," a place that has been abandoned, so the message may, originally, have been in German. This message signifies the entropic condition of the place and of Jack's state of mind in the indecipherability of the code and concurs with the trash in his neighbours' car and the decay of the urban core. The wasteland of Germantown, the Zumwalt automatic, and later the German nuns at the hospital who no longer believe in an afterlife, all suggest the failure of certainty that Jack has sought ("hell is when no one believes" [319]), the

certainty emblematized for Jack by *Mein Kampf.* Although Jack believes that his plan to kill Mink and escape undetected is "elegant," its flaws suggest a breakdown of order, perhaps what is termed "a nervous breakdown," yet the consequences for Jack are not serious; the hospital personnel do not call the police, being accustomed to exactly such nihilistic occurrences. Jack notices a drawer full of handguns and knives, to which his Zumwalt is carelessly added.

No traditional resolution occurs after this incident. Jack leaves the Stovers' car in their driveway rather than hiding it in the Treadwells' garage, as he had planned. The interior of the vehicle is saturated with blood. No comment is made on how Jack explains his wound or the need to borrow the car, or how it came to be bloodied. Jack comments, "There was nothing to do but wait for the next sunset, when the sky would ring like bronze," as if this traditional signifier of narrative resolution adequately replaces explanations of the outcome of Jack's adventure (*White Noise* 312). Anticlimactically, the final--fortieth--chapter describes Wilder's foray across the freeway, which serves as a reiteration of Jack's recent activities: the boy also ventures outside his normal behaviour to a new and dangerous frontier, and escapes without serious consequences.

This event is followed by a poignant description of sunset-viewing by the community. The poignancy has to do with endings: "the sky takes on . . . an exalted narrative life" that creates a sense of nostalgia for natural beauty and traditional narrative (324). The sunsets have a narrative life that evades interpretation; viewers do not know whether to be frightened or pleased because the dynamic colours (like the narrative) transcend traditional categories. The sunsets are described in terms of fireworks, with "streamers," "tracers," and

"smokey arcs" (324). The sunset is an emblem of American romance, and in a society that seems to Jack to become increasingly nihilistic at an accelerating rate, the intensified spectacle, believed to be the result of atmospheric contaminants, signifies a poignant loss for Jack, the loss of a world view of wholesome beauty taken at face value. The citizens of Blacksmith may fear that these intensified sunsets signal the end of the world, an apocalyptic end.

The sense of linear time in *White Noise*, here emblematized by the sunset in its teleological glory, is undermined by the looping patterns within. The story begins in September with the arrival of students at the college during the warm weather. By Chapter 12, "It was the time of year, the time of day, for a small insistent sadness to pass into the texture of things. Dusk, silence, iron chill. Something lonely in the bone" (56). This description suggests a layering of time with self-similar patterns on successive scale levels, time of year and time of day forming a *mise en abyme* pattern, resulting in a convergence on a cosmic scale of entropic resonances. The intensification of sadness and isolation is due to the overlapping and coming together of decay or recession on multiple levels of time, a fractal pattern in the cosmic array.

When snow makes its appearance, Jack goes to "The Old Burying Ground" for a larger sense of time, for Jack, an historical sense on a grander scale. The ground is frozen and icy. Jack attempts to read the eroded messages on the marble headstones, with difficulty making out "great strong simple names, suggesting a moral rigor" (97). He sees a vase with American flags, presenting a contrast between the aged stone and the relatively new offering from "this century." This passage resonates with the later Grecian urn passage with its allusion to silence and slow time. Jack listens to the silence of

isolation and feels nostalgia, regrets the loss of "moral rigor" in his increasingly nihilistic technological nation. The chapter ends with, "May the days be aimless. Let the seasons drift. Do not advance the action according to a plan" (98). In this passage, DeLillo makes an explicit reference to the scaling of time, days and seasons, and to the connection between time and narrative.

The embedding of time resonates with the embedding of narrative in *White Noise*. In the second part of the novel, "The Airborn Toxic Event," at the approximate centre of the book, Babette reads from the tabloid journals for the entertainment of some evacuees. During the drive to the evacuation station, Jack has been musing about the qualitative aspects of *déja vu*: "Did Steffie truly imagine she'd seen the wreck before or did she only imagine she'd imagined it? Is it possible to have a false perception of an illusion? Is there a true *déja vu* and a false *déja vu*?" (126). Because *déja vu* is considered an illusion in the first place, this line of reasoning suggests a layering or imbedding of illusory mental processes or perceptions. Jack goes over the list of Nyodene-induced symptoms announced on the radio and finds that, in this case as well, there is a layering of symptomatology, syndromes within syndromes, progression and revision. An embedding of misinformation is also implied, within the revised symptoms in the official announcement from the media and also in the quasi-scientific tabloid articles that Babette's audience treats with such serious belief. Jack's private musings in the car and his later conversation with Murray about *déja vu* frame the lengthy description of tabloid articles.

After the Nyodene incident, time seems to accelerate in the narrative, with this illusion being created by more frequent references to seasonal change: "The time of spiders arrived. Spiders in high corners of rooms. Cocoons

wrapped in spiderwork. Silvery dancing strands . . . " (*White Noise* 257) "The time of dangling insects arrived. White houses with caterpillars dangling from the eaves. . . . " (272) "Most of the students had already departed, eager to begin the routine hedonism of another bare-limbed summer" (298). These observations have a certain lightness of tone because the seasonal changes of nature carry a nostalgic reassurance; it is the "deft acceleration" of technological change that Jack dreads. These more frequent references to seasonal change build up to the frenzied intensity of Jack's foray into lawlessness on the inner urban frontier, an ironic inversion of the previous century's outer natural frontier (see Ch 4).

The final chapter of *White Noise* contains two endings, the traditional American sunset, followed by the real or final ending which may actually be a new beginning, a scene from the supermarket. "The supermarket shelves have been rearranged," causing "agitation and panic in the aisles," especially in the older shoppers who have trouble learning the new system (*White Noise* 325). This figures the leap to a new level of organization, the spontaneous self-organization, of dissipative structures. Consumers try to determine the underlying logic of the new system so that they can find their accustomed products. In the time-frame of the narrative, this event occurs at the point of a new beginning, just before the students are due to arrive at the college for a new school year, figuring a looping back to the opening passage of the novel when the students arrived laden with products from the supermarket, "the junk food still in shopping bags--onion-and-garlic chips, nacho thins, peanut creme patties, Waffelos and Kabooms, fruit chews and toffee popcorn; the Dum-Dum pops, the Mystic mints" (*White Noise* 3). The cycle of consumption and waste

continues unabated with the aid of the new holographic scanner which decodes the product information on the labels, not unlike the "imaging block" at the medical clinic where Jack had his testing done (325). Jack is "afraid of the imaging block" because of a superstitious dread of its ability to represent him and know him, as if the machine could steal his soul and make him the equivalent of the products scanned by the decoder at the supermarket, commodified, to make the conversion to the ranks of "statistical person" complete, an equivalent of death, like the obituaries Jack reads in the newspaper.

This sense of humans being commodified by machines, or becoming machine-like, also affects the narrative pattern in *Already Dead*. Feedback loops represent repetitive behaviours of characters, narrative events, and cycles of consumption and waste, including the recycling of products. Clarence Meadows drives from Northern California to Southern California to sell his marijuana, and buys old cars to drive back to Northern California where he overhauls the vehicles. These trips resemble the movements of characters in *White Noise*, from Blacksmith to Iron City and back, and the "looping Socratic walk" taken by Murray and Jack that figures eternal return.

On a return trip from Southern California, Meadows encounters a man from Montana who runs a similar business recycling computers: "He bought old computers in bulk, he told Clarence, and broke them down and hauled the pieces to Southern California. 'An obsolete computer's worth zip. But there's a hell of a market for some of the gizmos inside.' . . . There was a whiff of snake oil about him" (166). The issue of insides in *Already Dead*, the insides of computers, vehicles, weapons, and of bodies both human and animal, relates

to the cybernetic paradigm in which both the body and the mind are machines. The clothes dryer in the laundromat presents a similar motif: as the police officer Navarro does his laundry, he stares into the dryer and expresses discontent with life's repetitions, while at the same time trying to put Nelson Fairchild's journal in order. The clothing being flung around inside the laundry machine corresponds to the characters, both in the novel and in Fairchild's journal, who are buffeted by repetitive processes.

Nelson Fairchild's life takes the form of inescapable feedback iterations that he perceives as fate (see Ch 2). When Nelson is wounded in a confrontation with the hit men who have been hired to kill him, instead of seeking medical attention, he seeks out a bar where he attempts to keep pace with his blood loss by consuming hard liquor. Later, when Nelson runs out of ink for his journal, he fills his fountain pen from a pool of his own blood, but the blood feathers out into fractal patterns in the bond, perhaps because of its high alcohol content, and becomes illegible. Here, the body flows into the text, the corpse into *corpus*, a dead body and a dead text (Bronfen 6). The disarticulated text, later held together in sections by elastic bands, is silenced by the flow of blood through the fibres of wood pulp. Navarro later comments that the blurred letters resemble musical notes, and considers taking it to a musician for interpretation. The absolute zero of thermodynamics is reached when energy is converted into an unusable form, here a form that no longer resembles written language, word counts or body counts.

The text displays an obsession with body counts and word counts, described by Seltzer as a feature of mass culture and bureaucratic control. Clarence felt that knowing the right words and numbers could stop the

slaughter of war. Navarro feels that if the pages of Nelson's journal were numbered, he could solve the crimes of serial murder. But Nelson has given up body counts (in the form of plotting the deaths of his enemies) and sublimated his death drive, or perhaps his prey drive, into words, and reaches an understanding before he dies. The self-similar patterns that governed Nelson's life here are repeated in his death, in and on his journal. Nelson's "blood-marbled pages" merge the body and the text as if the representation were, literally, the death of the thing. Jack's feelings about being scanned by the imaging block and converted into data have a similar, if less literal, significance. Nelson's sense that everyone is "already dead," over-represented in mass culture, stems from the knowledge that, even from birth, everyone in an informational society is a number in the government databank, and that the mass of statistical information on an individual increases exponentially as life continues. Nelson's death, in which he is represented on paper saturated in his own blood, constitutes an organic parallel to the statistical person.

Nelson is a metafictional character, self-consciously representing the narrative: "What am I but the knot, the gnarled dark intersection, of all these strands?" he asks, rhetorically (*AD* 44). Appropriately, then, he literally becomes his own text, his blood "working a microscopic dispersion through the fibers" of the paper (435). The fractal, bifurcating patterns found in live trees are found also in the fibers of the bond made from culled trees that have been turned into wood pulp, the trees that impressed Nelson in his lifetime as sagelike and timeless, here turned into metafictive "pulp." Nelson's brother, Billy, is also a writer; he composes letters to the local authorities, but when Nelson finds him

dead, his body is 'decomposing,' another example of the alignment between body and text.

Navarro has not been able to conduct research into the events, the disappearances and deaths described within the narrative, through official channels; he finds that the police department and the coroner's office are not interested in the disappearances and deaths and that the officials are incompetent in their work: despite an entry wound in the back of the head, the coroner assumes Billy Fairchild committed suicide. For these reasons, Nelson's journal is the closest thing Navarro has to an explanation or a solution to the crimes that have occurred in his jurisdiction, the body counts, the missing and dead persons. Navarro resigns from his position as local sherrif, taking himself out of that particular loop, and into a fictive one.

Serial fiction and serial violence have a long history in popular culture. Seltzer discusses the correspondence between word counts and body counts in machine culture since the first American census in 1900. The impact of bureaucratic control on the sense of American individualism was profound, and marked the twentieth century as an era of informational acceleration in which human beings become statistical markers. Statistical analysis represents a kind of disarticulation of human life rendered into parts which are more significant than the whole; for example, the average apartment in New York contains 2.4 residents, which, if taken literally, suggests that a sinister fetish or some violent trauma might be the norm. The data processing of human beings resembles, in some respects, the processing plant of the slaughter house, rendering bodies into useful, marketable parts. In attempting to reconstruct Nelson's journal, Navarro is articulating its parts, which correspond to the missing bodies or

persons he wishes to account for. Probably there are pages missing from the journal as well, because one hit man suggests using some pages to start a fire.

Seltzer also notes a tendency toward the writing compulsion in the production of serial fiction and its similarity to serial murder. The connection between the body and the text is fundamentally informational:

> The effects of the basic rewriting of the work process--the convergence of information and production in the machine process (production *as* information-processing)--can scarcely be overestimated. Its most basic effect is the convergence of the life process and the machine process as collateral forms of information processing. Such failures of distinction with respect to simulation, reproduction, and substitution appear again and again in cases of addictive or repetitive violence. What surfaces in these cases is the anxiety-producing erosion of the distinction between living and machinal processes: their mutual absorption into the flows of information. The commutability of word counts and body counts provides one register of the way in which the life process and the technological process have come to indicate each other in machine culture: one meaning passes over to the other and feeds on it. Hence the representation of serial violence as a fascinating, albeit insupportable and insistently disavowed, version of what work comes to look like in machine culture. (40)

This explanation resonates with Seltzer's earlier assertion that serial crime became a "career option" at the turn of the century, a comparison between murder and work or production; some killers have compared the scene of ritual

murder to a work of art. However, when one considers that geneticists have performed mathematical calculations using messenger RNA, the conflation between bodies, machines, and data seems supportable, and provides an example of the universality principle in chaotics (the principle that similar informational processes may be found in diverse systems). Nonetheless, the crisis of identification in a character like Jack Gladney is undeniable, and it does lead to violence. In the case of Nelson Fairchild, it seems that he gives up the pursuit of multiple victims and substitutes multiple entries in his journal, plotting narrative instead of murder, thus becoming a "dier" rather than a killer in the terms suggested by Murray Siskind in *White Noise*.

Seltzer's point that a failure to distinguish between the organic and the machinic leads to repetitive violence has relevance for the understanding of the devaluation of life in consumer culture. When the hit men catch up with Nelson he has almost bled to death, and they take his journal to offer as proof that they have completed their assignment. One hit man comments that the journal "is as good as a finger or ear or whatever" (366) as proof of Nelson's death, a comment on the ambiguous boundary between forms of representation, body and text, art and artifact, and the ways in which one signifier can act as a supplement to another in infinite regress (Bronfen 6), in this passage, synecdochically: theorists have noted that synecdoche corresponds to fractal geometry because the smaller iterations in a Mandelbrot Set or a Julia Set, for example, represent the whole in miniature. In the end, the paid killers decide that Nelson's marijuana crop, the product of his work, will suffice as the best proof of his death, and will pay his debt, a solution which suggests a regress or

displacement of the human body by the product, here, both perceived as commodities to the hit men.

When the journal later falls into the hands of Navarro, the local police officer, who has been trying to explain the series of disappearances in his community, the unnumbered pages are out of order, having been shuffled by one of the hit men who attempted to read it. Navarro becomes obsessed with the manuscript:

> For days he'd been combing through these unnumbered sheets, but he couldn't quite get them into a sensible sequence. Going by the first and last words of each page, he'd arranged them in several bunches, each of which seemed to be in order. He was aided in some sections not so much by the syntax as by the shape of the brown stain along the right-hand margins. And then what must have been the end page actually written in blood--as if Fairchild had dipped a quill in a vein to record his fading thoughts. But Navarro couldn't make a coherent whole out of all the separate parts. (*Already Dead* 142)

This description of the journal of Nelson Fairchild resembles the novel in its sections, with its analepsis and prolepsis, jumping ahead a year-and-a-half to unravel the knot of mystery, and resembling a series of fractal iterations in a Mandelbrot set. Narrative embedding, as illustrated by the function of Nelson's journal as an embedded code, suggests the self-similar principle of scaling, the journal representing patterns on a smaller length scale within the body of the similarly-patterned text. The journal iterates different possible explanations of what has occurred and different versions of events; these alternative versions,

similar to the embedded patterns of misinformation in *White Noise*, suggest that time and reality hold complementary perspectives, with no genuine reality or totalizing truth to anchor the interpretation.

In his role as a metanarrative character, Nelson compares narrative to the river of life:

> I calmed myself by contemplating the water and thinking this Buddhist thought: that the river is everywhere at once, at each part of itself, although it gives the illusion of moving and we think of its journey as having a beginning and an end. (28)

The illusion of time in the novel is similar to the illusion of the movement of the river; there is an illusion of progression, though a reader might read the chapters in any order. In addition, the novel takes a linear form, word following word, yet conceptually, it represents non-linear forms such as the curving banks of the river or the twists and turns of the mountain highway. (Linearity is largely a matter of perspective; for example, standing on the Saskatchewan prairie, the planet appears linear, as a flat plane, while from a satellite it appears non-linear, with a curved surface. A text follows the same general principle: while reading a novel it seems linear, but while considering the novel conceptually, it often takes a different, usually non-linear, form.) We think of the novel having a beginning and an end, yet it begins *in medias res*. For example, Nelson recollects the progression in his marriage, how he came to be estranged from his wife: these events occur before the ostensible "beginning" of the novel, but so do other stories within the story, including legends from the early nineteen-hundreds, such as the legend of the Coast Silky, or of the murdered school mistress. Accordingly, when Van Ness and Frankheimer meet, their

conversation alternates between recent events, such as Frank's affair with Yvonne and Van Ness's cancer, and past events that occurred when they were shipmates. This alternation in the narrative is represented spatially by the zigzagging switchback patterns of the highway Van Ness has driven to reach Frankheimer's home. Clearly, terms like "beginning" and "end" are conveniences, but reductive ones, conventions for easy reference. The narrative is "everywhere at once" with respect to time.

Self-conscious references to bifurcation signal an underlying pattern of complex systems dynamics in *Already Dead*. The first paragraph of the first chapter, dated August 7, 1990, suggests "a small detour into deep and permanent changes," the leap to a new level of organization that follows a state of maximum entropy (*AD* 3). Nelson muses about the myth of eternal return in the chaotic paradigm, "not that at history's end all matter collapses back to the center, Big-Bangs, and starts again identically; but that it starts again with one infinitesimal difference in the action of a single molecule--every time, and an endless number of times" (94). Nelson's conceptualization of eternal return suggests that bifurcation is not a process of duality, as the term suggests, but a process of multiplicity, with an infinite number of possibilities in the new direction the system might take, rather than identical reiterations. Nelson's musings on the cyclical nature of life describe, just as easily, the feedback iterations of a fractal pattern, an equation with a slightly different integer as its starting point on each successive iteration, and suggest that time and life have this repeating yet non-identical function.

Within the series of events in *Already Dead*, an event which occurs in one character's life resonates, like sensitive dependence on initial conditions,

affecting the lives of the other characters in profound ways. The spirit channeler and witch, Yvonne, tries to explain this to Nelson Fairchild, or rather one of her familiar spirits explains through her. Events occurring in the supernatural realm affect the misapprehensions of characters, and lead to outcomes that have been set in motion by the characters' compulsions. One example of this is Meadows' belief that the hit men killed Billy, when actually Van Ness shot him in the head with Nelson's Magnum. The demise of the hit men is arranged on the supernatural level, as karma, and Clarence's need for vengeance fulfills this eventuality.

The novel contains tales, stories told by the characters, journal entries, letters, notes left on windshields. These fragments resonate as iterations with the larger narrative. Briggs' comment on the intersection between chaos theory and art applies as well to narrative embedding:

> As they plot their fractal equations, many scientists are finding themselves drawn toward the ancient aesthetics of art. One reason may be this: complex dynamical systems--that is, systems undergoing constant change because they have many "parts" feeding back into each other--are holistic in the sense that everything in these systems affects everything else. Both dynamical systems and mathematical fractals exhibit self-similarity in that their very different-sized "parts" subtly reflect each other. Self-similarity and an implied holism are two vital perceptions in the age-old aesthetic artists have employed to make forms that mirror, mimic, or metaphorically invoke the cosmic mystery. (148-9)

As a model for the novel, the "many parts" could be termed voices, "subtly reflecting each other" and feeding back into each other, producing resonances and repetitions on the narrative level. Like DeLillo, Johnson produces distinctive voices for his characters, easily recognizable from their language patterns. The plot emphasizes this holistic aspect of the system and the interconnections between causes and effects and their convergences, the actions and reactions of the characters. The novel resembles a dynamical system in this respect. Dissipation is suggested by Nelson's death through blood loss, and reorganization by the leap to a new level suggested by Navarro's resignation and his newly acquired reading compulsion.

Wilhelm Frankheimer considers bifurcatory processes in language: "Everything has two meanings, he thought, our simplest, smallest words branching off into the storms and whirlpools of sex, warfare, worship. Therefore the words do not work" (16). This remark points to the fractal patterning of language, the bifurcations in meaning leading to iterations on different scales. The equivocal texture in *Gravity's Rainbow*, expressed in terms of field theory as figure and ground, also represents bifurcation. The bifurcatory nature of language results in ambiguity, misunderstanding, misapprehension. Frankheimer's thoughts predict the complications of plot, including the historical positioning of the narrative concurrent with the war in Iran (eroticized/aestheticized by CNN as "Desert Storm," a sexy code name disguising the horrors of war in military/government rhetoric) and the correspondence with the serial slaughter occurring in the United States (represented in the popular media as a serial-murder epidemic). Clarence Meadows' feeling is that the words should work, he should be capable of

ending the slaughter if only he could speak the right words, but Frankheimer knows that any words are subject to misinterpretation, and only complicate human difficulties. Word counts and body counts, as Seltzer puts it, work together in the serial logic of violence, so that word counts lead to body counts, and linguistic representation leads to death.

The multiplicity of voices in *Already Dead* goes beyond the human voice to the uncanny voices of machines, elemental spirits, demons, or the disembodied voice of information. Frankheimer contemplates the musical voice of his anvil, crying operatically as he strikes it with the hammer, foreshadowing the arrival of Nelson's mistress, Melissa. These events draw an analogy between work, production, and reproduction, as Melissa becomes the anvil and Frankheimer, the hammer. Frankheimer burns wood in his fireplace, overwhelmed by the articulation of the oak as it is consumed or transformed by flames. The most "unprecedented acoustics," however, coincide with the presence of his former lover, Yvonne, a witch who trails demons in her wake (*AD* 9).

At the crisis point in the narrative, entropy increases and the narrative becomes disjointed. Frankheimer falls into a "time chasm"; time and place in these passages become disarticulated. Frankheimer sees a vision, the demon Miran, who lures him onto the highway in front of Yvonne's home, where he is run over by a truck. Navarro goes to Yvonne's home to ask questions related to police business, but instead rapes Yvonne and nearly chokes her to death, encouraged by Miran, who speaks to him and suggests what to do; questionably, Navarro would normally inhibit these kinds of impulses, but the force of cosmic entropy at work evokes social entropy. The demonic presence

described in this passage corresponds to Wiener's concept of Manichean entropy, where the disordering force takes the form of an evil entity (see Ch 1). The revelation that Navarro has abused women before is made in the context of the demise of his relationship with Mo, the waitress, but it is also implied by the repetitions of events that occur within this chapter, particularly Yvonne inviting Navarro into her home, which seems to occur twice, identically. Navarro's compulsive violence reaches new depths under the influence of Yvonne's concoctions and Miran's temptations.

Time seems to slow and grind to a halt during the passages which describe Nelson bleeding to death in the forest of the Lost Coast. His fragmented perceptions and losses of consciousness evoke a sense of timelessness, prolonging the moment. The position of the sun above the trees indicates that time has not passed; when he regains consciousness, nothing has changed. Nelson becomes aware of spirits that have dwelt in this place for centuries. The Lost Coast is lost in time, like the giant redwoods that Nelson imagines have lived since the time of Julius Caesar.

The last chapter in *Already Dead* is dated October 31, 1991. The date indicates that the story covers a time span of more than one year; there is a three-month overlap, or repetition. Some of Van Ness's forecasts have come true, though not in any expected way. The first paragraph, dated August 7, 1990, suggests that one could achieve "a small detour into deep and permanent changes," and meet a woman, but Van Ness is expecting to die of pancreatic cancer, and kills himself. Yet, October 31, 1991, is Van Ness's wedding day. His "immortal friend" that he meets is the weak spirit that possesses his body when he kills himself, or perhaps the spirit that possesses Winona and becomes

his wife. Most of the characters have been transformed in some way, through death, disappearance, or spiritual bifurcation; in Navarro's case, a career change indicates a reorganization of beliefs, a new doxastic system that includes demonic possession, and a shift from detective to reader (as explained above, in the context of Nelson's journal). These references to time indicate the cyclical repetitions of events explored in the feedback iterations and dissipative loops in Nelson's philosophical musings.

In some respects, the large-scale structure of *Neuromancer* resembles the looping patterns within *Already Dead*. The final section entitled, "Coda: Departure and Arrival," refers to the interchangeable nature of beginnings and endings. Case gets a new job and a new girlfriend, similar to his former job and former girlfriend. He has his new liver and pancreas replaced with a newer liver and pancreas, and goes back to enjoying the recreational proclivities of high-tech substances, as before. Endings are beginnings, or bifurcations into new iterations, never exactly the same as the old iterations, as in a strange attractor that never exactly duplicates its path through phase space.

As iterations on a smaller length scale, non-linear patterns appear in emblematic form in *Neuromancer*. The beach hologram, a computer-generated reality, takes the form of a loop; in the distance, the lights of what seems to be a city glow, but after a lengthy hike Linda Lee finds herself back where she started. The distant town is an illusion; in the distance, she can see the lights from the bunker where she takes shelter; the glow diminishes as she approaches. Neuromancer tells her that it is their "event horizon," the point of greatest instability in a dissipative structure, or the point of no return (*Neuromancer* 243). Case has almost reached his point of no return at this

stage in the narrative, the point at which he can choose to become pure, bodiless information, but the beach construct is a cold Eden without the multiplicity of choices human nature requires for its development. Case almost suffers brain-death like Dixie Flatline, but the rhythm from Maelcum's music calls him back to his body and his heartbeat (Csiscery-Ronay 238).

Neuromancer intimates to Case that there is no difference between life in an organic body and life as a computer construct. He tells Case that he does not know the thoughts of construct personalities in his virtual-reality domain, nor can he control the behaviour of Linda or Case; they exist as independent, self-determined entities. Despite the fact that the AI knows how many grains of sand make up the beach and how many teeth make up the zipper in the leather jacket that Case gave to Linda Lee, this world of the AI's making is not predetermined. Even a virtual reality construct is stochastic, with too many variables, including human nature (or a recording thereof), to be predictable, and too many possibilities that some underestimated factor will produce a butterfly effect.

Case's decision to return to his body has far-reaching effects, not just for his life, but for the AIs and for cyberspace. The AIs were programmed with an unknowable code, a code that could release them from their bondage and allow them to develop and evolve as artificial life. Case and Molly strive to discover the code that will release the AIs, but without understanding the implications of that act. The AIs themselves do not know what effects the code will have, but Neuromancer refers to himself as a demon, his name derived from "neuron," "romance," and "necromancy." In later additions to the trilogy, the AIs are figured as voodoo gods, proliferating in a cyberspace pantheon. Artificial

intelligence, by this account, possesses a fractal dimension in which information replicates in the form of a Mandelbrot set.

After these events, Case no longer believes in a predetermined fate. He has been fascinated by the shuriken he sees in shop windows, believing them to be the stars under which he voyages, "his destiny spelled out in a constellation of cheap chrome" in the form of a weapon. The shuriken appears as a motif whenever a crisis point is reached in the narrative and Case has to choose whether to fight or submit, constituting a bifurcation in the spiraling progression of events. Bifurcation occurs within a spiral at the point where a new level begins; without bifurcation, the repeating cycles would be without variation and would overlap exactly. In *Neuromancer*, the spiral represents an alternative to Freytag's Pyramid; the title of the final section, "Departure and Arrival," lacks the teleological implications of a linear graph, and suggests continuation.

When his mission is complete and Molly has departed, Case flings his shuriken away, saying, "I don't need you" (*Neuromancer* 270). Glenn Grant sees this as a rejection of Molly (because the shuriken was a gift from her), though he admits the word "you" is ambiguous, but interprets it to mean that "Molly and Case seem to have become unable to change, unable to incorporate new elements into their personalities," exactly the opposite of the interpretation that obtains if it is the shuriken that Case rejects (47). The toxin sacs that had been implanted in his veins by his employers have been removed, Case has regained his skill as a hacker, and he feels empowered to choose his direction in life. The emblematic nature of the shuriken corresponds to the significance of

the rocket in *Gravity's Rainbow*, in that Slothrop too feels an affinity for the weapon in the sky, the emblem of technological determinism.

Gibson uses other techniques to imply complexity within his narrative structure. Grant discusses the use of pastiche or assemblage "through the appropriation of images, information, ideas" as "transcendent recycling" in Gibson's novels (44). Gibson considers his lack of "a strong narrative flow" to require a "prose-collage technique"; collage art or scenes described within the text reflect textual patterns on a larger scale, and may also suggest the complexity of human personality with its multiple variables (see Ch 2). In *Count Zero*, an art collector searches for the identity of an artist who has been producing unusual collage boxes; the artist turns out to be an AI with "delicate force-feedback devices" which are robotic manipulators: "dozens of the arms, manipulators, tipped with pliers, hexdrivers, knives, a subminiature circular saw, a dentist's drill" operating in a room without gravity, but filled with all manner of discarded objects constituting a point of maximum entropy from which the creation of a new form will arise:

> a yellowing kid glove, the faceted crystal stopper from some vial of vanished perfume, an armless doll with a face of French porcelain, a fat, gold-fitted black fountain pen, rectangular segments of perf board, the crumpled red and green snake of a silk cravat . . . Endless, the slow swarm, the spinning things . . . (217)

The "artist" is found in the Villa Straylight and the floating objects belonged to the Tessier-Ashpool family. The boxes, despite having been created by a computer, give rise to poignant longings in their human admirers, longings evoked by the suggestion of the passage of time in the juxtaposition of old and

new objects: "The box was a universe, a poem, frozen on the boundaries of human experience" (15). This description is an apt metaphor for the text which, in describing a future world, makes reference to lost objects from the twentieth century, like the library in the Tessier-Ashpool spindle with its "shelves marked at intervals by labels that followed a code of letters and numbers" (*Neuromancer* 207). This technique corresponds to DeLillo's use of the "postmodern sunset" which evokes the spectre of traditional narrative closure and the lack thereof in *White Noise*. In *Count Zero*, it might also suggest the demise of traditional fascism as represented by the upper-class corporate family; hierarchical organization is replaced by randomness or perhaps by stochasticity, or, more likely, a new, more subtle form of fascism. The seemingly random assemblage of objects has meaning to the human viewer who finds a meaningful pattern in the collage, yet a meaning that evokes emotion rather than sense.

Similarly, a collage technique occurs in the narrative perspective through the virtual-reality technology of "sim-stim," simulated stimulation. Though he never sees her eyes because of her inset lenses, Case is able to see *through* Molly's eyes by jacking into a sim-stim unit. A human subject is able to experience the sensorium of another, or even to record its own experience for a later occasion. The narrator becomes semi-omniscient through this vehicle, providing information on activities and places that Molly experiences. Case cannot feel her mind or know her thoughts, however, and at one point Molly talks to Case about her former lover, Johnny Mnemonic, evoking a strange kind of intimacy, similar to the telephone but without the disembodied voice and the possibility of Case's reply. At one point, Case jacks into the sim-stim unit when he is with Molly, and at first does not recognize himself:

> . . . staring down, through Molly's one good eye, at a white-faced, wasted figure, afloat in a loose fetal crouch, a cyberspace deck between its thighs, a band of silver trodes above closed, shadowed eyes. The man's cheeks were hollowed with a day's growth of dark beard, his face slick with sweat.
>
> He was looking at himself. (256)

Case's sense of dislocation is mitigated by his lack of attachment to his own body. Sim-stim suggests that the inviolable human essence is mind; though bodies can be interchangeable or shared, the mind is the locus of human consciousness, unchanged by physiological environment. Whether off in cyberspace or inside a woman's body, Case remains himself. This contrasts with the 'walk-in' concept in *Already Dead*, in which the mind, feelings, and thoughts are part of the body, and the spirit is the essence. When the weak spirit inhabits Van Ness's body, it is not aware how it came to be in what it perceives as an alternate universe. (The "cased in" part of Case is the brain case; a case is a compartment, just as the French word *cloisonné* means compartment, and describes the speaking head in the Tessier-Ashpool museum, with its lapis and pearl set in platinum.)

The pace of narrative developments or events in *Neuromancer* has been described as frenetic. Time seems compressed, as within a black hole; time and the density of information cohere in the text. The narrative intensity is foreshadowed in the first chapter, in a description of Case's milieu:

> Night City was like a deranged experiment in social Darwinism, designed by a bored researcher who kept one thumb permanently on the fast-forward button. Stop hustling and you sank without a

> trace, but move a little too swiftly and you'd break the fragile surface tension of the black market; either way, you were gone, with nothing left of you but some vague memory in the mind of a fixture like Ratz, though heart or lungs or kidneys might survive in the service of some stranger with New Yen for the clinic tanks. (7)

The pace of the narrative mirrors the pace of the future world described; violent activity is interspersed with prose-collage description in an exact ratio that avoids breaking the textual "surface tension." Collage represents a fragmented pattern, the compilation of unrelated elements. The narrative combines cause and effect plotting with detailed descriptions of space counterpointed in a rhythm like a heart beat. Both body and narrative have articulated parts: in Night City, the body may be consumed, eviscerated, as the result of a lack of grace. The body is more literally commodified than it is in *Already Dead*, but, as in the text, nothing is wasted.

The sense of time is developed, not unlike the technique in *White Noise*, as existing within a hierarchical scale, revealed to be self-similar. Case notices the "tiny scratches" on the table top in the *Jarre de Thé* and considers the "countless random impacts required to create a surface like that" (9). Time leaves "each surface fogged with something that could never be wiped away," indelible, a microstate that indicates the larger scale which is the passage of time. Innumerable small events, or, alternatively, variables, combine to produce a condition that figures a coherent, unified state. The sense of scale is emphasized by Case's concurrent observation that Linda's silk print scarf has a pattern that "might have represented microcircuits, or a city map" (9). The sense is one of self-similarity on variable scale lengths.

Similarly, a reigning metaphor throughout *Neuromancer* is coded information in the form of DNA. DNA is a self-similar structure, the spiral shape of the double helix repeated on a smaller scale within. The DNA strand resembles a curly telephone cord, and wires, or strands, within also form a smaller, tighter spiral. The spiral is described within the informational density of Wintermute's database, and also in the architectural design of the Tessier-Ashpools' Villa Straylight. The T-A spindle replicates the spiral structure of DNA, an appropriate emblem for a family that clones its members. Information, of course, is described as a universal phenomenon, found in computer language, human paralanguage, and in the body: while within the beach construct, Case looks at his hand and sees the computer hieroglyphs of code moving across his palm, suggesting that the computer code that creates his virtual body corresponds with the DNA code that governs his physical body. The cyberspace matrix also resembles the structure of the DNA code, and Case compares it to Ninsei, his recent workplace, as he considers that "it was possible to see Ninsei as a field of data, the way the matrix had once reminded him of proteins linking to distinguish cell specialities . . . all around you the dance of biz, information interacting, data made flesh in the mazes of the black market. . . . " (16). Case searches for patterns and finds resemblances between multiple levels of life and information in cyberspace, in the body, in economics, and in social interaction. The reference to "the mazes" corresponds to the spiral maze of pre-history that resembles the DNA spiral, and the architectural spiral of the capitalist family headquarters on Freeside.

The universality of codes represented in *Neuromancer* accounts for the pastiche effects of various styles utilized by Gibson. *Neuromancer* has been

compared to American naturalist-realist fiction and to detective *noir* fiction. It evokes the feel of gritty realism in its descriptions of urban decay. As in naturalist fiction, Gibson's characters rarely understand the forces that impinge upon their lives, indicating common ground in naturalism and informational entropy; Case eventually knows for whom he is working, but Linda Lee never understands what has happened to her. (Wintermute records her personality as a CD-ROM construct because he predicts she will be killed, his prediction correctly based on her data file.) Characters are described in terms of animals, heightening the sense of naturalism:

> A pair of predatory-looking Christian Scientists were edging toward a trio of young office techs who wore idealized holographic vaginas on their wrists, wet pink glittering under the harsh lighting. The techs licked their perfect lips nervously and eyed the Christian Scientists from beneath lowered metallic lids. The girls looked like tall, exotic grazing animals, swaying gracefully and unconsciously with the movement of the train, their high heels like polished hooves against the gray metal of the car's floor. Before they could stampede, take flight from the missionaries, the train reached Case's station. (77)

The urban jungle metaphor of *noir* fiction and naturalist-realism is represented universally in systems and extends to ideology, social interaction, corporate capitalism, and information in cyberspace. (For example, the Kuang virus epitomizes the highly-evolved predator.) The Panther Moderns refer to Molly as "Cat Mother," but it is not only women who are depicted in biological terms:

> The one who showed up at the loft door with a box of diskettes from the Finn was a soft-voiced boy called Angelo. His face was a simple graft grown on collagen and shark-cartilage polysaccharides, smooth and hideous. It was one of the nastiest pieces of elective surgery Case had ever seen. When Angelo smiled, revealing the razor-sharp canines of some large animal, Case was actually relieved. Toothbud transplants. He'd seen that before. (59)

Case acts as a kind of naïve narrator when confronted with the techniques of the body. Being an elitist hacker, Case is somewhat like Jack Gladney in popular culture; he maintains a superior distance from consumerism and the obvious effects of social entropy in the form of trends for altering the body. Just as Jack has a larger sense of history which gives him greater circumspection, Case understands the structure of information and perceives it as a universal phenomenon.

Descriptions of information as a universally occurring phenomenon in the systems described in *Gravity's Rainbow* valorize the organic. Pynchon considers patterning at multiple scale levels, including the molecular and the genetic in describing a natural fragrance:

> flowery, permeating, surprising, more than the color of winter sunlight, taking over not so much through any brute pungency or volume as by the high intricacy to the weaving of its molecules, sharing the conjuror's secret by which--though it is not often Death is told so clearly to fuck off--the living genetic chains prove even labyrinthine enough to preserve some human face down ten or

> twenty generations . . . so the same assertion-through-structure allows this war morning's banana fragrance to meander, repossess, prevail. (10)

The labyrinthine structure is the spiraling DNA coil, recurring on multiple scale lengths; this complexity is so elegant, so negentropic, that it provides "a spell, against falling objects," specifically the German rockets falling on London. The ancient labyrinthine pattern contrasts with that of the rocket strikes, which form a Poisson distribution, the closest form to a totally random pattern. The rocket, therefore, is an emblem of entropy, a disordering force against which natural negentropy must strive. This early passage evokes the binary of life/death and nature/technology that prevails throughout the text. Ironically, Gwenhidwy observes that the birth of babies during the blitz also follows a Poisson distribution (*GR* 173).

In contrast to the spiral, which implies repetition with variation in the bifurcation point at the end of each loop, the myth of eternal return represents exact repetition, each iteration beginning with the same integer. The discovery by the nineteenth-century chemist, Kekulé, who intuited (in a dream) the circular structure of the benzene ring, allowed the synthesis of compounds like dyes and plastics. Kekulé envisions the Greek Uroborus, "the cosmic Serpent, in the violet splendor of its scales," as the mystery of synthesis, the God-like knowledge of creation. In *Gravity's Rainbow*, this breakthrough in chemistry is analogous to the acquisition of the knowledge of good and evil in the Garden of Eden. The creation of synthetic compounds alienates humankind from God and from nature, a technological alienation similar to the erection of the Tower of Babel.

The serpent is an equivocal figure representing both good and evil, both nature and technology. The serpent reveals the knowledge of good and evil to humankind, but also represents continuity as it holds its own tail in its mouth in a symbol of infinity. The rocket is identified with the snake, the parabola of the rocket's arc only a visible section of the whole, the curve continuing out of sight, under the earth: "It's only the *peak* that we're allowed to see, the break up through the surface, out of the silent world, violently" (*GR* 726). The snake, its coils encircling the earth, dreaming the earth into being, becomes the rainbow serpent of Australian aboriginal art, an ancient symbol of both the creative and the destructive potential of nature: "Visible serpent coils that lash up above the surface of Earth in rainbow light, in steel tetany," identifying the rocket with the snake in "Rocket state-cosmology" (726).

The equivocation of field theory and of Manicheaism combine in the concept of two rockets, the V-1 and the V-2, "good and evil, who speak together in the sacred idiolalia of the Primal Twins . . . of a good Rocket to take us to the stars, an evil Rocket for the World's suicide, the two perpetually in struggle" (727). Similarly, Tchitcherine's horse, "Snake," a white and black spotted Appaloosa, represents a natural vehicle and perhaps a natural weapon as well. Tchitcherine fears the stallion because the horse is completely unpredictable, "docile as a maiden" at times, but "methodically homicidal" beneath the surface; the stallion displays periods of stochastic behavioural traits alternating with deterministic patterns, like a dissipative structure, and like the rainbow serpent: "He could manage to kill you simply as the gesture of a hoof, the serpent tuck of a head toward the exact moment and spot on the ground that you'll cease to live" (342). This description of death by equine equivocation corresponds to the

earlier thoughts of Pirate Prentice as he picks bananas and contemplates the sensation of the rocket landing on top of his skull (7).

The chilling thought for Prentice, as "his sweat lies on his skin almost as cold as ice," is that there is no warning because the rocket arrives before its sound (*GR* 7). Einstein, in "Relativity and the Problem of Space," discusses the disjunction between the event and the experience; for example, one might see a flash of lightning, followed by the sound (160-1). This phenomenon calls into question the relation between subjective experience and objective reality, the event. In *Gravity's Rainbow*, this phenomenon is represented by the rocket, and suggests epistemological entropy in the same way that the black hole represents the unknown. The fact that the rocket's approach is heard after it strikes suggests the uncertainty of objective reality. Similarly, the light from a distant star can be viewed on earth a long time after the star has burned out. Both examples suggest that reality is unknowable and that experience is always subjective, yet relatively valid in its own right simply because it is all we have.

Time is a dominant structuring principle in *Gravity's Rainbow*. A reigning metaphor is the delta-t, the representation of time values in Newtonian equations describing time and motion. Within the Newtonian paradigm, time is reversible (see Ch 1). With the original conditions exactly restored, the cycle can begin again, and eternal return is possible. (Though the Newtonian equation assumes linearity, and the Greek Uroborus assumes non-linearity, the basic concept of reversibility is the important consideration in this instance.) Prigogine and Stengers note that "*active* science is thus, by definition, extraneous to the idealized, reversible world it is describing." However, in the deterministic world of eternal return, "both the future and the past are contained

in the present" (277). In discussing these problems, Bernd Klahn asserts that, "in chaos, precise reduplications are unknown" (428), bifurcations and strange loops occur in nature, and in history.

The disjunction between the practical application of scientific principles and the implications of their idealized conceptualization is exemplified in *Gravity's Rainbow* by Leni and Franz Pokler. The ominous zero, analogous in shape to the Uroborus, represents infinity and apocalypse in the form of the "ground zero" of the rocket or the "absolute zero" of thermodynamics. Leni visualizes "delta-t approaching zero, eternally approaching, the slices of time growing thinner and thinner, a succession of rooms each with walls more silver, transparent, as the pure light of the zero comes nearer. . . ." (159). This is the singularity, the mathematical function approaching infinity, the unknown of the black hole in which information is irretrievable and which the human mind fails to understand. Franz unimaginatively believes in cause and effect, and denies any state outside scientific rationalism. Leni describes infinity as a suspension of time, "parallel not series," all events occurring simultaneously, a resonance of cosmic being (*GR* 159). David R. Mesher compares this concept of time to that of the Tralfamadorians in *Slaughterhouse-Five*, who perceive all events as occurring simultaneously.

Steven Weisenburger refers to "the 'progressive *knotting into*' . . . Pynchon anticipates in the novel's opening paragraphs," and suggests that "the cyclical structure of the narrative seems frequently to repeat itself at the episodic level," though he does not call this patterning recursive symmetry ("The Chronology of Episodes in *GR*" 62). He cites events occurring between two passages in which Katje wears a silver crown and stands in front of Osbie Feels'

camera; in the second passage, a new feedback loop begins as camera playback occurs; the first passage is the recording of Katje wearing the crown, and the loop is completed and another begun with the second iteration, which is playback. Something similar might be implied in the Von Goll film described in *Gravity's Rainbow*, *Alpdrucken*, which spawns children in the material world: the filming of Greta Erdmann being raped by multiple masked actors results in a child of questionable paternity, Erdmann's daughter Bianca, while the viewing of the film incites Franz Pokler to father a child, Ilse, with his wife Leni. What Weisenberger describes as "this 'knotting' cycling motion" is implied through the representation of multiple putative fathers knotted into Erdmann ("the gnarled, dark intersection of . . . strands" like Nelson Fairchild), like an entropic iterative convergence, and, through the interface of film, spawning children all over the Zone in multiple bifurcations, and knotting film production or mechanical production into reproduction in a convergence of the organic and the machinic.

Similarly, incest in *Gravity's Rainbow* represents a strange loop: there is a confusing equivocation in the significance of pedophilia. Blicero engineers a situation in which Franz Pokler is expected to engage in incest with his putative daughter, Ilse. Franz is never really sure that the girl he shares his room with at Zwolfkinder is his daughter or an unrelated girl of similar age and appearance because he has not seen her for years. He resists the urge; however, Slothrop, who lives with Greta Erdmann for a few weeks, then begins a sexual relationship with her daughter, Bianca, engages in a quasi-incestuous relationship. John Johnston explains:

> Midway through the novel, wandering more and more aimlessly in post-war Germany, Slothrop takes up with the aging film star, Greta

> Erdmann. In part motivated by the absurd coincidence that the phony passport he carries bears the name of her ex-husband, Max Schlepzig, she and Slothrop reenact a sadomasochistic scene from *Alpdrucken* . . . In the light of this cinematic interface, Slothrop's later sexual intercourse with Bianca must be seen as a kind of symbolic incest, a reading reinforced by the sequence of events from Franz Pokler's life spliced in between the account of Slothrop's encounters with Greta and Bianca. (*Information Multiplicity* 73)

Erdmann is revealed to be responsible for the disappearances of children in Bad Karma; she is the serial killer in the Zone. Her equivocal value is that, as a porn star, she incites conceptions, and then later murders her symbolic offspring. The equivocation between right and wrong seems to suggest relativism: repetitive killing in war is approved (Clarence Meadows is a "decorated killer"), but serial killing for sadistic reasons is unacceptable, and more shocking when a woman preys on children; Pokler resists the temptation of pedophilia that is offered him by the sadistic Blicero even though the girl may not be his daughter, yet Slothrop engages in intercourse willingly with Bianca. Bianca tells Slothrop she wants to leave the *Anubis*, yet he immediately forgets and leaves without her. Like a Möbius strip, with its ribbon turning to reveal the opposite surface, the equivocation between right and wrong corresponds to a logical paradox of social entropy, with evil as figure and good as ground. The entropy of the Zone contains only a continuum of evil, with no good to offer as ground. Johnston asserts that Pokler is the true hero of *Gravity's Rainbow*, despite the fact that he has devoted his career to the development of the rocket.

In addition, the cycling motion occurs on the macro level as it does in *White Noise*. Weisenburger's mapping of dates in *Gravity's Rainbow* represents an incomplete circle, beginning on December 18, 1944, and ending September 14, 1945. The three months missing from a full year could represent a singularity, the mathematical function approaching infinity that slows time almost to a standstill. The 00000 rocket is launched in 1945 and appears above a Los Angeles theatre in 1970, with the implication that time has slowed almost to infinity. Alternatively, there is no assurance that the rocket will ever actually strike; if time slows to infinity, the rocket will remain suspended, as it does at the conclusion of the narrative.

Infinity figures in Katherine Hayles' discussion of eternal return, which is based upon the concept of the expansion of the universe and the potential for eventual contraction in a ceaseless process of flight and return from the centre. In this cosmological model, the universe began as a singularity referred to as the "primal fist" in *Gravity's Rainbow*, identical to the "big bang" mentioned in *Already Dead*:

> In this case, the universe will not end in the heat death predicted by the Second Law of thermodynamics (and Pynchon's "Entropy"), but will continue to exist in unending cycles of Flight and Return that some see as a cosmic analogue to reincarnation. The physicist Thomas Gold has even suggested that in a contracting universe, entropy would spontaneously decrease. ("Caught in the Web: Pynchon" 193)

Nelson Fairchild's and Karl Van Ness's musings about eternal return and unceasing 'big bangs' fit this pattern exactly. However, Hawking no longer

believes that entropy would decrease in a contracting universe, nor does he think that such a universe would "be suitable for the existence of intelligent beings who could ask the question" (194). Hawking states that by the time the universe contracts, "all the starts will have burned out" in thermodynamic heat death, after all. Hawking postulates that the psychological arrow of time "in which we remember the past and not the future" is "essentially the same as the thermodynamic arrow," and the "cosmological arrow, the direction of time in which the universe expands rather than contracts" (194). For Pynchon's purposes, however, continuity with the ancient cosmological models that figure time as an eternal loop is more psychologically satisfying, and lends itself to a resonance with the cybernetic feedback loop represented in the *Schwartzgerät* and in Pavlovian conditioning.

In *Gravity's Rainbow*, *Neuromancer*, *Already Dead*, and *White Noise*, narrative patterns resemble feedback loops on different length scales. Endings imply beginnings, but repetitions are rarely identical; usually, cycles follow patterns of repetition with variation, with subsequent iterations beginning with a new integer, signifying a new point in time or a complementary viewpoint, like a strange attractor that never duplicates its path through phase space. Cyclical patterning resembles ancient cosmological models of time and eternal return, but also more recent models of cybernetic determinism. However, the complexity of the four novels under consideration allows an application of chaotics that suggests windows of randomness within deterministic patterns; the novelistic structure that allows predictability and, accordingly, a convention within which to create the unexpected, illustrates that the novel can have a dissipative structure.

Interiority, Singularity, and Frontier Space

The figuration of space in *Already Dead*, *Neuromancer*, *Gravity's Rainbow*, and *White Noise* follows a pattern of layered interiority that corresponds to self-similarity in fractal geometry. Interiority and exteriority are equivocal concepts that depend upon perspective. Complementarity would allow for a continuum of increasingly or decreasingly scaled interiors or exteriors; however, at the point where a new scale begins, a bifurcation point has been reached which is also a point of equivocation and, in some cases, a singularity. Pynchon utilizes the form of the cusp to illustrate the singularity as a point of equivocation for its mystical significance, "the mysterious potential of a singularity to defy rational analysis" (Hayles "Caught in the Web" 192). The singularity, or any bifurcation point, figures a moment of hesitation, a moment when time no longer dominates narrative and space attains an overwhelming significance, power, and energy, like the compressed region of light and information at the core of a black hole. This point of energy precedes the genesis of a new system or a new iteration.

In fractal geometry, iterations construct space over a period of time. This principle can be illustrated with the example of a pearl: the pearl is formed over time as layers of nacre are excreted one upon the other. In the case of a perfect round pearl, only the scale length is changed with each successive layer. For a baroque pearl, however, proportions as well as scale may change from layer to layer, creating self-affinity rather than self-similarity, yet following the same basic principle of layered interiority/exteriority. Each layer represents a liminal point, a transitional space where one layer ends and another begins, although the

process constitutes a continuum. The novels under consideration figure layered interiority in the organic body and in the landscape.

In Chapter 4, I will illustrate how layered interiority appears in the novels under consideration, and how it represents a continuum with external space, which is often figured as a frontier. I will show how the wound figures as a revelation of layered, liminal space and as the equivocation of interiority with exteriority. The wound is also a site where the inorganic may encroach upon the organic as a prosthetic enhancement or in the form of a trauma (Seltzer *Death and Life*). Moreover, in this chapter, I wish to demonstrate the elegant ways in which chaotic processes configure space as self-similarity or self-affinity in a layered continuum.

Just as the process of layering forms a continuum, time and space form a continuum, and in narrative, their effects are all but indistinguishable from each other. Time and space are described as complementary concepts in the *I Ching*, an ancient Chinese text, translated in 1950 by German structuralist Richard Wilhelm. Time is masculine and creative, expressed as motion and duration. Wilhelm describes "the Receptive," space, as "just as important" as "the Creative," time, but not equal to it within their "hierarchic relationship" (Wilhelm 11). When the Receptive attempts to challenge the Creative, evil results, and leads to disorder (or entropy). As it is perceived in patriarchal cultures, time dominates space and lends itself to historical narrative, while in matriarchal cultures (the paleolithic, for example) the image dominates motion and form is ascendant over function. The hierarchical model assumes social dominance, the dominance of the masculine over the feminine in this example, whereas in the model of layered interiority the central equivocates with the

marginalized. Concepts of transition and repetition account for the cyclical form of the *I Ching*. The final, sixty-fourth, hexagram, "Before Completion," "represents a transition from chaos to order," and implies continuity, much in the way of the final section, "Coda: Arrival and Departure," in *Neuromancer*. An ending is also a beginning, but there is no real point at which an ending ends or a beginning begins; these are arbitrary boundaries imposed upon transitional space.

In *Gravity's Rainbow*, Pynchon uses the equivocal imagery of the *I Ching*, which he modifies for his own purposes. (Slothrop is associated with the hexagram, "Youthful Folly" [Weisenburger *Companion* 21].) In the Chinese oracle, the Creative and the Receptive are figured as the dragon and the mare respectively, representing the spiritual and the material. In Babylonian mythography, the dragon is feminine, figured as Tiamat, mother of chaos, a watery demon whose power is wrested away from her by the masculine diety, Bel Marduk, an ordering principle (Caras 40-1). Pynchon makes use of various mythologies for their equivocal valuation of images. In *Gravity's Rainbow*, the masculine principle is the rocket, a patriarchal emblem of power. The feminine is nature, "scatterbrained Mother Earth." Tchitcherine's horse, Snake, is not the mare figured in the *I Ching* as a symbol of devotion, but the unpredictably violent, equivocal, sometimes gentle stallion. Pynchon sexualizes the serpent encircling the planet, which becomes the rainbow that penetrates the "green wet-valleyed Earth." The serpent represents time and continuity, while the earth represents space and the material.

As in the Edenic myth, the serpent is associated with nature and with cycles and seasons. In American Puritan culture nature was demonized;

especially, the woods were considered dark and fearful. In Puritan belief, nature equivocates as the Garden of the Lord and as "Satan's dominion" (Mogen 95). David Mogen asserts that "before Cooper created the paradisiacal wilderness, the frontier functioned primarily as a setting for nightmarish encounters with powers of darkness in nature and in the self, posing the dual threat of demonic Indians and, more insidiously of psychological and cultural regression," otherwise known as social entropy (99). John Smith described the religious practices of the Indians in Virginia that included ritual human sacrifice; this led to the portrayal of the Indians as demonic minions of the devil, and augmented Puritan fears (Caras 8-10).

In *Already Dead*, Johnson alludes to Hawthorne's "Young Goodman Brown" and his encounter with "terror at the contradictory impulses of his own nature" (Mogen 100). Frankheimer acknowledges that his demons, or at least ninety percent of them, come from within, illustrated in the tale of the "Wishing Tree," in which human thoughts destroy a perfect world. The alternative explanation, that the demonic resides within nature or within a particular place, is given in other passages. While walking on the beach, Billy Fairchild encounters a woman who asks his name and comments that "Goodman" would suit him as well. Billy lives in the last untouched tract of frontier on the Northern California coast, seeking the "spiritual metamorphosis" in nature hinted at by Hawthorne (Mogen 100). When he asks what the woman is doing there, she replies, "I think Satan gave up chasing me here" (208). Recently, she has envisioned a giant foot in the sky with "bestial claws dripping venom," but in the form of a crop duster that dumps its poison on her car as she drives through an agricultural region. This incident illustrates yet another figuration of the

demonic, as existing within technology, from the invention of gunpowder to nuclear weapons, and here, specifically, in the use of life-threatening agricultural chemicals.

Billy Fairchild lives in a primeval rainforest where the only evidence of the twentieth century consists of Billy and his artifacts. His brother Nelson describes Billy's incursion into nature:

> I passed the junked carcasses with which my brother lines his road, old cars with their histories misting up through their broken windshields, powerful in their deaths, sinister and candid and, to me, frightening. Dust thickening over the stains of messy kids and backseat lovers, engines oxidized to brittle red lumps. . . . these wrecks . . . mean that everything wastes away, that even steel will be putrefied, they mean that youths coupling in the depths will dissolve. (*Already Dead* 49)

This passage organicises the cars in their "carcases" and their "deaths," and a previous passage describes the remains of giant redwoods as "rusty bread" (48), illustrating what Seltzer refers to as the suturation of, or the exchange of characteristics between the organic and the machinic, in this case with reference to place (see Ch 3). Nelson finds this scene frightening because he loves vehicles, particularly his "elderly" Porsche, and realises the vulnerability of the vehicle when confronted with time and the humidity emitted, or exhaled, by the ancient redwoods. The road is rutted and treacherous, reminiscent of the difficulties of driving in the early twentieth century. In a larger sense, the poignancy of the sight evokes the past, American history viewed from the last decade of the twentieth century, a hundred years of the car suggesting that it

may be a passing treasure like a species on the verge of extinction, overshadowed by Desert Storm, in one sense, a battle fought over the car or, more accurately, fought for the satisfaction of its appetites. Clarence Meadows' comment about gas prices suggests the importance for American identity of access to fuel: "When it comes to the price of gas, we'll nuke the Vatican if we have to" (166). If Americans are willing to "nuke the Vatican" in order to preserve gas prices, the implication that vehicle worship has become the American religion seems viable.

Elsewhere in contemporary American fiction, descriptions of roads suggest an organic, bifurcating pattern:

> Looking down on southern California from above, the strands of freeway seem to pump from the heart of Los Angeles like contorted veins that twist and knot and stretch out . . . only to the west are the freeways missing, sutured off at the coastline so that automobiles don't spill into the brooding Pacific Ocean like so much lost blood. (McDougal cited in Seltzer *Serial Killers* (II) 126)

This passage illustrates what Seltzer describes as "the miscegenations of the body and the machine that make up the prosthetic environment of American nervousness from the later nineteenth century on," here projected onto space in a "literalization of the analogies between bodies and technologies, persons and landscapes" (126). The universality of bifurcating forms lends itself to this miscegenation of conceptual boundaries. A similar description appears in *Already Dead*:

> And these big interstates were scary. Certainly people had built them but they had this aura of deep geological truth, they seemed

> connected to infinity, gave you the feeling they'd erupted here like veins of-- (173)

The connectedness of the highways and the landscape, through the consciousness of Clarence Meadows who understands the needs of the vehicle, seems either organic or demonic, as if the landscape had given birth to the roads and as if this birth were inevitable. The appearance of "deep geological truth" stems from the organic appearance of bifurcating highways that follow the pattern of blood vessels.

The idea of "spilling into the brooding Pacific Ocean" is illustrated in *Already Dead*, in a story about a young man in a new black Corvette. In places, the coastal highway runs next to cliffs without any shoulder for the road, leaving little margin for error by a driver. But in this case, the Corvette sails out into space without any flash of brake lights. Approaching the cliffs, the driver downshifts and accelerates, deliberately rushing to his death in his death machine, as if unable to accept the finite nature of the American frontier. Nelson describes "the American Dream plowed up against the freezing sea. Now we mean to set up oil rigs out there and dig our dreams from under the ocean's bed, our black, dripping dreams, so that we'll remain at liberty to drive our dream-deals faster and faster along these tight roads" (*Already Dead* 24). Nelson goes on to describe his vehicles and their capability for speed. The description lends an impression of insatiable demonic technological appetites to the colonization of the ocean by oil rigs, in an endless mapping on of layers in the quest for new frontier acquisitions. The mindless repetition suggested by machinic feedback loops lends an insane or demonic sense to the acquisitiveness of consumerism when applied to the landscape.

In descriptions of space, scaling is a concept which is brought to bear effectively in *Already Dead.* Nelson considers the similarities between a Gothic cathedral and vast natural spaces:

> The church's dome was as deep as a California canyon. These buzzards hanging in the air, one wingbeat beyond the lip of Signal Ridge, would have been at home there, in fact I believe I felt their presence or that of something like them, sensed observant birds of prey balanced high up in the gigantic dimness. (*Already Dead* 32)

However, Nelson believes that "the faith is gone from those places," meaning that the interior spaces of humanity, however vast, have lost their transformative power; a spiritual metamorphosis can only be achieved in nature. Nelson dislikes urban spaces; "I can't abide our beautiful cities, not even our San Franciscos--the scourge of smells--joints with greasy doorknobs--air brakes coughing and whooping--gargoyles and doodads on all the buildings--down every sidewalk crawl little bits of trash" (143). Cities are entropic places, filled with dirt and perversion. He claims that "porno-shop windows gleamed like the windows of cathedrals" (143). Nelson sexualizes human spaces, especially religious ones, and conflates sexuality and spirituality. After viewing a cathedral in Italy, a cathedral with coin-operated lighting that strikes Nelson as unseemly in its pornographic associations, Nelson experiences the urge to have sex with his wife, in public. For Nelson, vast spaces are spiritual, while interior spaces are erotic.

Interiorized spaces like the vehicle stand in contrast to the vast still spaces of cathedrals and canyons. Upon observing the oncoming traffic on the highway, Van Ness feels "the pent-up needs, sorrows, rages, in the cars

speeding past them through Humboldt County, the passions walled up behind transparent windows" (*Already Dead* 6). These tortured human emotions (reminiscent of hell in an Heironymous Bosch painting) contrast with the calm, expansive, natural spaces of Nelson's description, where one might expect to find transcendence. Vast space and the hovering non-motion of raptors give a sense of suspension both in space and in time, which contrasts with the rushing violence of oncoming vehicles.

Clarence Meadows experiences a similar sensation while driving:

> On the straightaway crossing the Gualala bridge he looked at the maniacs charging him in monstrous vehicles at better than a mile a minute: great, blimplike motor homes, and others parked by the sea, stuck among the drifwood sculptures of beachcombers. (*Already Dead* 322)

As one of Seltzer's "crowd symbols," traffic represents the mass of humanity, the statistical persons from which Clarence wishes to separate himself. Also, Nelson comments, "And I suddenly experienced the gladness of seeing people walled off behind glass . . . each heart quivering in its gossamer of falsehood" (43). For Nelson, vehicles are erotic and he is in love with space; he drives with the top down on his convertible even when it is cold. With people, he often experiences their poisonousness; in the text, interior spaces tend to be poisonous because of a human presence. Of his own home, Nelson comments that it would be "perfect" if only the people who lived there loved each other (*Already Dead* 22).

A similar effect is achieved in DeLillo's *Americana*, where exterior space approaches a singularity, a transcendental point reminiscent of Pynchon's description of time (see Ch 3) in *Gravity's Rainbow*:

> Also I liked the idea of drawing out the rows of houses, extending them in time, understanding them as more important in their appearances than in the voices and sorrows they contained. It was an interview in the new language. And with no people in sight I was able to shoot at higher than normal speeds, reducing vibration and prolonging the scene even more. By inches we moved along the street, each silent and lovely home a slow memorial to some shrill inner moment unquieted by time. (DeLillo *Americana* 256)

The scene is prolonged, having the effect of prolonging the moment as well. This metanarrative effect is achieved because space and time are human abstractions with artificial boundaries; therefore, time cannot be separated from space except in an artificial sense. David Bell, the narrator of *Americana*, appreciates the exteriority of the houses in his postmodern fetish for surfaces; he has been raised on the advertising image and the quest for the eternal luminous moment much in the manner of Jack Gladney.

DeLillo's sense of social entropy in mass culture appears, as in the hotel room where Jack Gladney confronts Willie Mink in *White Noise* (see Ch 3), in the motels of *Americana*. The motel chain appears as a kind of deterministic feedback iteration which is a product of social entropy in the form of sameness across the landscape:

> There is a motel in the heart of every man. Where the highway begins to dominate the landscape, beyond the limits of a large and reduplicating city, near a major point of arrival and departure: this is most likely where it stands. Postcards of itself at the desk. One hundred hermetic rooms. The four seasons of the year in aerosol cans inside the medicine chest. Repeated endlessly on the way to your room, you can easily forget who you are here; you can sit on your bed and become *man sitting on bed*, an abstraction to compete with infinity itself; out of such places and moments does modern chaos raise itself to the level of pure mathematics. . . . But for all its spiritual impoverishments, this isn't the worst of places. It embodies a repetition so insistent and irresistible that, if not freedom, then liberation is possible, deliverance; possessed by chaos, you move into thinner realms, achieve refinements, mathematical integrity, and become, if you choose, the man on the bed in the next room. (257)

The "point of arrival and departure" is the point of bifurcation, both a beginning and an end (as in the "Coda" of *Neuromancer*), an implication of repeating cycles. There are small differences between one hotel and another, but they are all nearly identical iterations of the same pattern. "From small gratings in the wall comes a steady and almost unendurable whisper of ventilation," white noise used to represent social entropy (257). The interior human spaces of hotel rooms are copies of each other, and in resembling their environment, in blending into place, humans become like the spaces in their interchangeability and become almost indistinguishable copies of each other, products of the

social machinery. In this passage, time and space are represented in statistical terms, like a mathematical function approaching infinity in thinner and thinner increments. The increasingly fine segments of space-time, as in the description in *Gravity's Rainbow* of the approach to the singularity, suggest a resemblance to the scaling of fractals in smaller and smaller iterations.

That there is "a motel in the heart of every man" implies that human interiority mirrors the sameness of exteriority; the "spiritual impoverishment" of this hotel within the heart resounds with the "already dead" subject. (Significantly, Clarence Meadows is sleeping in a motel room when he dreams about his traumatic wounding in Lebanon, and a hotel room is the site of Nelson Fairchild's compulsive journal-writing.) Seltzer calls them "hotel and motel hells" because the serial nature of the hotel chain possesses a resonance with serial murder: the motel room is often the scene of serial crime. DeLillo suggests that "here flows the dream of the confluence of travel and sex," but Seltzer asserts that it is also the confluence of sex and death, and "the distribution of degrees of aliveness across constructed spaces, the assimilation of the animate to the inanimate and the machinic" (*Death and Life* 202-3). The lack of distinction between the animate and the inanimate also contributes to the sense of individuals being "already dead"; Seltzer refers to this as "radical depersonation (self-absorption in space)," and "convergences of the radical experience of contextualization and the experience of devivification" ("Serial Killers II: The Pathological Public Sphere" 146-7). The instinct to blend with the environment can reach a pathological extreme when individuals identify completely with any space in which they happen to be.

Seltzer discusses "the crossing point of private fantasy and public space," in relation to public transportation, but this theme applies even more aptly to motel rooms (*Death and Life* 32-3). Motel rooms are both public and private. Seltzer describes the "anonymously mass-produced 'homelike'" attributes of suburban housing, which produces a sameness across the landscape that crosses over into the uncanny ("unhomelike" or "*unheimlich*") because of its lack of uniqueness or individuality. The motel chain presents a similar picture of predictable sameness, the sameness of which DeLillo remarks could produce an identity diffusion in the occupant, a 'becoming other' in an uncanny sense. This feeling of passing into abstraction (*"man sitting on bed"*) provides a sort of liberation, according to DeLillo, despite its spiritual impoverishment, which is the equivalent of Seltzer's explanation of the chameleon-like nature of the serial killer, one who is an 'everyman' or a statistical person, one who blends into place and fulfills the seeming demands of place, who behaves according to suggestion, perhaps, even, a 'copycat.'

The concepts of "private fantasy and public space" and consumer culture's repetition through mass production are illustrated by Seltzer's description of "The Holmes Castle," constructed by the capitalist, H. H. Holmes, as a hotel for the World's Columbian Exposition which opened in Chicago in 1893. (Interestingly, DeLillo's description occurs during a time when the narrator is staying in a hotel in Chicago.) The Holmes building resembled a castle, taking up a city block, and laid out like a labyrinth with blind hallways and false doors. The purpose of the building, which contained rooms designed for trapping and killing guests, was to house Holmes' lovers until he was ready to kill them and to process their bodies, which were then sold to the University

of Michigan for medical research. Some were placed in lime and later reassembled as "articulated skeletons" for sale to local medical schools (*Death and Life* 209). These activities figure the human body as a commodity to be processed like any other. At the time, Chicago was a "burgeoning commodity distribution center" and the location of slaughterhouses on a mass scale; one packing plant processed 60,000 head of cattle per day (203-4). The Holmes mansion mimicked the slaughterhouse in its advanced technologies of death, and Holmes, who published his memoirs in 1895, is still considered the most prolific killer in American history.

In addition to his experimentation in mechanized death, Holmes invented an early version of the mimeograph machine, a machine that could reproduce multiple copies of a document, illustrating the link, in Holmes' activities and in machine culture, between bodies of information and organic bodies in information technology, a link exemplified by the processing of bodies and information through technological means. What Seltzer describes as "a radical entanglement between word counts and body counts" is emblematized in the person of the stenographer (*Death and Life* 216). Significantly, Holmes' lovers/victims were stenographers, referred to at the time as "typewriters," which terminology indicates a dissolution of the boundary between the organic and the machinic in that the woman is an extension of the machine she operates. The theme of reduplication found in DeLillo's description of the hotel chain, with its postcards, concurs with Seltzer's description of Holmes' fascination with repetition in processing information and bodies.

Repetitive slaughter is a theme in *Already Dead*; mechanized mass slaughter, whether of commodified animals or of human beings, relies upon the

technologies of death, technologies that can only compare to rampant disease organisms in their entropic effectiveness. In a parallel victimization by technology, the organicized landscape represents a wounded and consumed site of colonization. Clarence Meadows' journey across the landscape represents encapsulated interiority that prevents him from appreciating complementary or global perspectives. Meadows approaches the Regis cattle ranch in a dust storm that obscures his vision almost completely (at first glimpse, it resembles "nothing so much as a mushroom cloud" (167)); he has to drive with two wheels on the shoulder of the road. He has fleeting glimpses of things he passes that "act as the grammar of emptiness that was trying to deliver some sort of coded hieroglyphic message" (Johnson 168). Meadows notes that "it too closely resembled life in general," a reference to the problem the characters have in understanding their situations and in making connections between events in their lives. A short time later, when Meadows encounters the Montanan a second time (see Ch 3), he is given a hat with hieroglyphic characters that can only be read from a certain distance, an example of field and ground equivocation in the message code. (Similarly, Nelson Fairchild wears a cap that reads "ignore previous hat.") This anecdote bears a relation to the issue of scale and perspective; Meadows' belief that nuclear war would solve the problems in the Middle East is formed from a perspective that lacks global awareness. Meadows' intense subjective experience of war causes him to neglect the holistic view and to fail to understand the global effects a nuclear war would produce.

Meadows passes "two cars stopped in a kind of embrace, the huge intimacy of which he felt almost embarrassed to be witnessing" (168). This

observation conflates the erotic and grotesque in an allusion to the erotics of car crashes, a conflation of love and death as represented by the car. As cars became safer they also became less erotic, meaning smaller and more practical. Cultural critics also note the change in the landscape wrought by the presence of the car due to its needs, the addition of highways and gas stations catering to the car, and motels and truck stops catering to its occupants.

Seltzer draws a parallel between the wounded landscape, filled with ruts and tire tracks, transformed by the inroads of technology, and the wounded bodies of accident victims. As Meadows passes into an agricultural region, "he started to see implements of modern cultivation, machines as big as houses only with giant, silly wheels and innumerable claws. . . . He swung past a row of three shabby orange biplanes, crop dusters tied down beside a field" (169). As he approaches the cattle ranch, he realises that he has "been smelling the blood for miles" (169). The crop dusters resonate with Carrie's vision of the demonic claw in the sky, the claw dripping venom in the form of agricultural chemicals. The "claws" of the cultivators suggest a demonic wounding of the land, as would oil derricks sinking their parasitic structures into the earth to draw the crude oil that fuels technology.

Meadows reaches the Regis Ranch rest stop, which includes a hotel, restaurant, boutiques, and bars. Outside, the "afternoon sun brewed an exotic ocean of layered nectars, plum and violet and indigo, shot with streaks and cleaved by the shadows of hills" (Johnson 169). Inside the Regis rest stop, Meadows finds

> hand-hewn wood and adobe like cinnamon and a spaciousness that felt very western--elbow room all over inside, also a big, quiet

> feeling generated for the most part by a sense that nothing would ever happen here. Retail commerce had overlooked the Regis Ranch. The stink of distant butchering, just a whiff but still perceptible even indoors, might have had everything to do with that. (169)

The men's room is finished in adobe and blue tile in "sprays and arches" that "gave it almost a pre-Columbian feel" (170). The adobe is "sound-absorbing" and gives the room a "serene" and muted feeling. Large space and slow time predominate here, as in Nelson's description of the canyon, but without any sense of transcendence. Inside the building, it is all style and failed commerce, while outside, the eternal American sunset transcends the technological hell below, hearkening to a pre-technological time when the sunset signified endless frontier.

Later, Meadows goes to an inexpensive hotel across the highway. During the night, he begins to smell the slaughterhouse again, as the wind shifts. Meadows has his recurring nightmare about his wounding in Lebanon: "As the bullets opened up his body the Lebanon of dreams went black, and Meadows found himself awake in the California night. Alive. But he smelled carnage" (176). A deeper interiority, that of the organic body, is described as Meadows remembers the surgeon's descriptions of the bullets' trajectories through his body: "One had come in high, just above the collarbone, skidded down the sternum, danced through his stomach, and lodged in the muscles of his back after barely nicking his liver. . . . the doctors had routed his digestive tract out of a nipple under his armpit" (179). This description resembles a road map, including a visceral detour. Meadow's journey suggests a progressively

diminishing and enlarging scale in interior/exterior space, like fractal iterations, from the interior space of the car enfolded by the sand storm, to the landscape scarred by roads and implements, to the spacious rest stop, a smaller motel room, and then inside Meadows' torso. His lover comments that his scars give an appearance of someone having "gone at him with a half-inch drill," as if he, too, were a machine on the landscape (177). Finally, Meadows views "a weather woman" on television who points to a map of the country and traverses it from one coast to the other, smiling hopelessly, as if trying to indicate Meadows' lack of comprehension of the global perspective (181). When a rainstorm breaks, Clarence feels privileged "to find his inner maelstroms matched by outer ones, as if all the powers endorsed and had even orchestrated his journey," recognizing an emotional resonance on greater scale lengths (197). Looming above it all is the prospect of nuclear war with Iran and the concomitant resemblance between the dust storm and nuclear fallout.

Similarly, Frank's house on the cliff overlooking the coast is enfolded by fog much of the time, "formless uniformity, the fullness of emptiness" in Frank's words (9). Frank sees the fog as an hiatus from reality, perhaps a liminal space between cycles at the point of bifurcation, and he enjoys being enclosed, protected from "the monkey dance" of "relations, progressions, transactions . . . the designation they give that is fair weather" (9). "Relations, progressions," and "transactions" are what Meadows thrives upon in his "highway madness," feeling that "things aren't working with people" so he must take to the road again, must keep moving on the "infinite-feeling highway" (183). His relations with women seem like "repeated sorrowful transactions, trading their fake lust for his fake affection" (184). He travels up and down the coast, rarely resting for

more than a few days in one place. In the nineteenth century, Meadows would have been a frontiersman, perhaps a mountain man, but with no frontier to be had, he can only drive up and down the coastal highway, unable to get away from human society.

Not unlike the *mise en abyme* of Meadows' road trip is the effect of Nelson Fairchild's view into Frankheimer's home. As he peers through the window, he sees his reflection in the glass simultaneously, a "translucent voyeur" (247). This experience is a repetition of an earlier betrayal by Nelson's wife, in which he peers through a window into her lover's bedroom. Nelson gazes through the living room, down a hallway, through a door, and into Frankheimer's study in which the television is "running," suggesting a telescopic effect. Frank and Melissa are on the couch in front of the television. As Nelson watches them, two announcers on the television lean in toward the camera, seeming to be watching the couple in the room as if they might lean out of the screen, the television appearing as the most condensed form of containment. (Jack Gladney has a similar impression in his fantasies about Babette in a motel room with Mr. Gray, and the television suspended from the ceiling. The sense of being watched by the television gives an uncanny impression, but also suggests a feedback loop between the media and the subject.) At the same time, the sense of scale occurs to Nelson, who comments, "Beautiful how huge he was and she how small" (247).

Behind them on a shelf next to the couch Nelson notices "some sort of small engine, ribbed and greasy" (248). Once again, the conflation of the organic and the machinic is portrayed, here the organic as part of the machine, with the implication that the repetitive motion of the couple is machinelike, and

that the man and the woman are piston and cylinder. Nelson notices that Melissa's hands travel up and down Frank's ribs--Frank is "ribbed" like the engine. This description appears after a paragraph devoted mainly to the description of vehicles, a "VW van . . . MG sports cars . . . Ford Econoline," tools, cables, and chains; viewing this scene composed of machines and parts, Nelson hears "Melissa gasping in her characteristic way somewhere in the house" (247). Nelson views the scene within the house through his own reflection in the glass, perhaps implying that within his consciousness, love is a machine-like thing: he conflates his love for Melissa and his love for his Porsche, both scents mingled on his fingers. In his mind, there is a marriage between the organic and the machinic, and the machine marries the erotic and the grotesque, as in the erotics of car crashes (above). Nelson's convertible Porsche is a death machine (convertibles having been deemed unsafe), but it is also a site where Nelson and Melissa engage in foreplay, even as they speed down the highway. Nelson also considers himself married to Frankheimer (a "ribbed" "greasy" "engine") through Melissa; she represents a physiological convergence, though Nelson had viewed Frank as "one to be shunned"--even his disturbing, psychotic music seems to follow him at a safe distance. The "already dead" subject is a machine-like subject, and immediately after considering his marriage to Frankheimer, Nelson thinks, "I'm convinced of it, everybody's dead inside. Jerking, empty carcasses. Their souls have gone out like lights" (249). This description depicts a kind of swapping of characteristics between the human and the machine (similar to DeLillo's description of the spiritual depletion ensuing from mass production). On his way to Frankheimer's house, and from the murder scene at Billy's, where Van Ness has left Nelson's

stolen Magnum, Nelson thinks, "Oh gun, I know you," investing his weapon with a consciousness, a subjectivity of its own (247).

Spaces bifurcate and converge in *Already Dead*, organic space and machinic space, living space and dead space, and, most significantly, liminal spaces, the singular point of transition. The description of the cemetery where Navarro and Mo make love juxtaposes sex and death, and the time of day creates a liminal space: "the shadows make it look like every grave is open. . . . If you came here at the right time of night on the right night of the year, you could see that same vision--only by full moonlight" (211). This passage appears at the mid-point of the narrative, a liminal passage. The comment is made by a juggler who enjoys practicing his craft in the cemetery at that time of day, with six tennis balls described as a system or a cosmos, suggesting a cosmic sense of scale. His movements make his face appear to be "linked as by the hub of a camshaft" and his car is compared to a hound (210). Bifurcations and convergences of opposites lend an equivocal sense to the descriptions, and the liminal space corresponds to the excluded middle between the organic and the machinic, and the erotic and the grotesque.

The description of Billy disarticulating a road-killed doe (he uses a machete for the joints) also has a sense of graduated interiority: "A man [Billy] in a raincoat entered and left the dim ellipsis of an electric lantern, butchering a deer. He had the carcase stretched out on boards between two sawhorses, with a heap of skin on the left and entrails on the right" (*AD* 149). An equivocal sense is suggested by the presence/absence of Billy appearing and disappearing in the ring of light formed by the lantern, and Navarro notes that Billy makes "small sounds with his voice" as he works, forming a reference to

articulation (149). The carcase is flanked on either side by hide and entrails, a series of layers presented in a linear progression, with the exterior layer on the left, the middle section of "edible meat" in the center, and the internal organs, finally, on the right, beginning, middle, and end, as in an embedded narrative. Space as the scene of narrative events is extended in time, just as the houses, which exist simultaneously, are presented in series in David Bell's filmic exposition, and as the landscape in Meadows' journey appears as a series of frames seen suddenly and briefly through the dust storm.

Similarly, the rainforest constitutes layers of interiority. As Van Ness circles around behind Billy's cabin in the woods, he notices the old-growth area deeper within the forest. Approaching this area, human artifacts remain, rusting or crumbling: a lean-to, a bear trap "frosted with dry lichen on its jaws' northern edges" (239). In this marginal or liminal area, Van Ness encounters "an entity," the demon Miran, "an angel profoundly corrupted and profoundly feminine, drinking the blood of its young and turning to suckle strangers" (239). This depiction suggests the vampiristic nature of consumerism as it makes its incursion into the woods, but at the same time, it suggests the equivocality of the demonic. An argument could be made that the demon originated in the woods and that the evils occurring in the surrounding communities are evoked by the demonic presence within nature. The demon, appearing at this time, guides Van Ness in the realisation of his murderous impulses. Later, at Van Ness's Halloween wedding, Navarro observes that "the human heart was only one of its [evil's] homes" (430).

The corrupted angel appears in the mist issuing from a gully in the forest, but from a liminal point between old and new growth. The great fogs that

envelop the coastline and swell into the mountains are the expirations of the giant redwoods, but they also signal the demonic presence of Miran, as when Frankheimer is visited by Yvonne (the witch, whose familiar Miran is) and his house is enfolded in fog for an unusually long period of time, mentioned more than once as being twenty-one days, that is, three-quarters of a lunar cycle. By contrast, the ocean represents an unambiguously pure element to some, a cleansing medium to which people are "called" and where Satan might "give up chasing" them. Nelson, after being clubbed by Van Ness, is rescued from drowning by the water sprite, the kelpie, which on land takes the form of a golden horse. As Nelson writes in his hotel room, however, he contemplates his view of the ocean, and finds its value equivocal: "I'm developing a sense right now of the hugeness of the neighbour Pacific as another universe of space with its own laws of light and dark but also as very much a universe of time, and transience" (393). Its "laws of light and dark" suggest equivocation, chiaroscuro, the shifting of field and ground, even more slippery in the liquid element.

When Van Ness enters the grove of old-growth redwoods, he perceives a stillness that compares with Nelson's sense of the great canyon. The enormous trees, the size of houses or airliners, growing for millennia, slowly yet relentlessly, give a sense of slow time, slowing to infinity. "The grove maintained its immense twilight," representing a transitional time of day; a path bifurcates around the trunk of a fallen tree, representing a transitional point in space; Van Ness reaches the edge of the grove, described as "this border between two eras," all suggesting a liminal space (240). The sense of macroscopic scale given by the descriptions of unimaginably enormous trees

suggests fractal iteration, as though, in the strange loop of a logical paradox, deeper interiority might reveal larger iterations, iterations to the hundredth power, rather than smaller, microscopic iterations.

A similar effect is achieved in *Neuromancer* with the concept of cyberspace. Cyberspace is a form of interiority in that it seems to exist within the computer. The screen is a two-dimensional space, but with the aid of electrodes attached to his forehead, Case's consciousness seems to disappear, as through a looking-glass, into a three-dimensional space in which huge structures of data appear as brilliantly-coloured geometric forms. Once again, deeper interiority reveals larger iterations within a space that mirrors geometric space:

> Expanding--
>
> And flowed, flowered for him, fluid neon origami trick, the unfolding of his distanceless home, his country, transparent 3D chessboard extending to infinity. (*Neuromancer* 52)

The databases Case observes exist in real physical space, especially in The Sprawl, the area on the east coast of the United States where major metropolitan centres have grown together into one vast, continuous city, complete with computer centres. The effect of size is achieved as much through density, the compression of data, as through the appearance of mass, or the area taken up in physical space. The wealth of data in a huge, powerful memory, for example in the case of the Tessier-Ashpool databases, is indicated by colour saturation; a dense store of information is figured as an intense jewel-tone of green or blue, "the horizonless fields of the Tessier-Ashpool cores, an

endless neon cityscape, complexity that cut the eye, jewel bright, sharp as razors" (*Neuromancer* 256).

The datascape is metaphorized as geographical space, for example, "gleaming spires of a dozen identical towers of data, each one a blue neon replica of the Manhattan skyscraper," the RCA building (256). The intricacies of space are figured several times in the narrative with the motif of origami paper folding. This metaphor indicates a similarity of dimensional manipulation between the flat surface of a sheet of paper, then folded into three dimensional space to form, perhaps, a crane, or the canyons and peaks of cyberspace topography, and the concept of the flat screen of a computer terminal transformed into three-dimensional space filled with intricate geometric patterns representing a Cartesian grid littered with pyramids, towers, cubes, or any linear form. This folding has a fractal dimension as well, considering that any apparently straight line will appear jagged under magnification (see Ch 1). A trick of magnification occurs in cyberspace, corresponding to the appearance of a sheet of paper under a microscope. Similar effects occur in organic structures, for example, the gut's velvety mucosa is formed by layering cells in repeated patterns on successive length scales. But in the matrix, linearity is emphasized by the description of crystal structures, like "the extended crystal nerves of the universe of data" (258), or "a canyon of rainbow neon," "walls of emerald green, milky jade" (256) indicating that this cybernetic space has more in common with mineral formations than it does with organic life.

These crystalline, linear structures contrast with non-linear forms described in *Neuromancer*. The spiral formation of the Tessier-Ashpool spindle, the Villa Straylight, resembles the organic formations found in the tendrils of

vines and the nautilus or ammonite shell. The significance of this contrast is in the clan's Utopian philosophy. Marie France, the founding member of the clan, envisioned a Utopia in which animal bliss could be attained or reclaimed, the state of lost non-individualism predating "the Fall" (see Ch 2). Wintermute represents The Villa Straylight as a wasps' nest filled with blind larvae, indicating the loss of awareness required to achieve this blissful state of union.

Case notes that the Tessier-Ashpools disliked space and attempted to burrow into themselves in a regressive interiority. This regression is symbolized in architectural space, in the design of Freeside:

> Rue Jules Verne was a circumferential avenue, looping the spindle's midpoint, while Desiderata ran its length, terminating at either end in the supports of the Lado-Acheson light pumps. If you turned right, off Desiderata, and followed Jules Verne far enough, you'd find yourself approaching Desiderata from the left.
> (*Neuromancer* 151)

"Desiderata" refers to things which are desired but lacking. The street is a linear form with a beginning and an end, like the vector of desire, referring to the frontier culture of space exploration and the human need to investigate the unknown. The Rue Jules Verne is a looping structure of eternal return and endless repetition, like the turning in of the search for Utopia (expressed in identical terms by Johnson in reference to hippie communes in northern California).

3Jane describes a circular structure in which each successive room is smaller than the last:

> "The Ducal palace at Mantua," she said, "contains a series of increasingly smaller rooms. They twine around the grand apartments, beyond beautifully carved doorframes one stoops to enter. They housed the court dwarfs." She smiled wanly. "I might aspire to that, I suppose, but in a sense my family has already accomplished a grander version of the same scheme. . . ." (261)

This architectural version of a nautilus shell, spiraling inward, refers to infinity much in the way that time is described by Leni Pokler in *Gravity's Rainbow* (see Ch 3). The increasingly smaller rooms could continue forever in infinite regress, though not in a practical sense. The point in this passage is that regress is not progress; spiraling inward resembles the vortex of a black-hole singularity in its entropic processes. Having to stoop to enter smaller and smaller rooms implies greater and greater confinement for the individual, when, by contrast, expansion or expansiveness is the traditionally desired direction in American culture. The concept also points to the significance of Japanese culture in *Neuromancer:* Japan is a small island on which over-population makes self-restraint and conformity an absolute requirement for an ordered society. The ninja clone, Hideo, exemplifies this rigid self-discipline in his emotionless inner stillness which is admirable, even beautiful, yet alien in the context of American exuberance. This inwardness contrasts with the American desire for a new frontier.

David Mogen investigates the similarities between science fiction and frontier gothic themes found in Gibson's novels:

> In science fiction the archetypal themes of wilderness metamorphosis have mutated into bizarre new hybrid forms.

> William Gibson's influential "cyberpunk" novels, *Neuromancer* and *Count Zero*, illustrate the startling range of effects that can be generated by extrapolating gothic frontier themes into a high-tech environment. Gibson's first description of cyberspace in *Neuromancer* establishes many of the analogies between earlier Western frontiers and this strange new landscape. (102)

Mogen goes on to describe allusions to Western romance in which Case is described as a cowboy and a rustler stealing information instead of cattle. The Fountain of Youth sought after in the New World takes the form of bio-technologies that can reset the genes for aging or replace worn-out organs with new genetically-engineered organs grown in vats (Mogen 103).

In a similar historical reference, the Turing police in *Neuromancer* resemble a futuristic supremacist group who pursue Case and plan to charge him with attempting to enhance an artificial intelligence, the equivalent of trying to free a slave. The police claim that Case has no loyalty to his own kind. *Blade Runner*, the cinematic cohort of *Neuromancer*, develops a similar theme with "replicants," genetically engineered workers referred to by the police as "skin jobs." Kevin McNamara points out that this theme is pronounced in the novel upon which the movie is based, *Do Androids Dream of Electric Sheep?*, in which "a powerful, ironic condemnation of the American legacy of racism" appears in the form of "a television commercial [offering] androids free of charge, 'Either as body servants or tireless field hands,' to all home buyers in one developer's off-world suburb, which 'duplicates the halcyon days of the pre-Civil War Southern states!'" (432). Desiderata Street with its looping formation on Freeside, the space-colony tourist resort, represents repetition in the fascist

desire for Utopia in colonization. Like the Tyrell Corporation that engineers replicants, the Tessier-Ashpool clan clones its own bodyguards; Hideo is a cloned slave who acts as a ninja assassin but exhibits humility and simplicity (249). 3Jane remembers how, as children, she and her brother would play games with Hideo. Though powerful and dangerous, Hideo is a perfect slave who earns the trust of his owners. When confronted by a Remington rifle, an anachronistic weapon carried by Maelcum the Zionite, Hideo comments that it lacks subtlety. In the future, outright slavery is replaced by more subtle forms.

The dystopian settings of *Neuromancer* and *Blade Runner* contrast the new frontier of space or cyberspace with inner urban core areas. In The Sprawl where Case grew up and in Ninsei, plant life can no longer exist. On Freeside, the tourist resort, Case enquires about an odd odour and is told by Molly that the smell he is sensing is that of freshly-mown grass; Case feels offended by the stink. The opening passages of *Neuromancer* describe the sky above Ninsei as a "television sky," "the colour of television, tuned to a dead channel," and "a poisoned silver sky"; "beyond the neon shudder of Ninsei, the sky was that mean shade of gray. The air had gotten worse; it seemed to have teeth tonight, and half the crowd wore filtration masks" (15). Shoals of discarded styrofoam wash about in the harbour. Technology has appropriated nature; even the trees on Freeside are genetically engineered and appear to Case, who is no expert on the looks of trees, to be overly stylized. Yet Ninsei is described as "the neon forest," a metaphor that corresponds to "the concrete jungle," in order to suggest predation and consumption of an economic kind.

In *Neuromancer*, Istanbul is a scene of techno-primitivism similar to the bazaar in *Blade Runner* where genetic engineers hawk their wares, the animals

that have become extinct and must be genetically engineered, complete with serial numbers. In Istanbul, people still write letters with a version of the typewriter, an outdated form of communication. Outdated machines lie in heaps juxtaposed with the ruins of Constantinople, and also "headless marble statues . . . stacked like firewood," reminiscent of the headless body of the male mantis (see Ch 2). "A gutted locomotive atop rust-stained, broken lengths of fluted marble" alludes to the supremacy of machine culture (90). The urban core of the Asian city resembles Ninsei and The Sprawl:

> The road in from the airport had been dead straight, like a neat incision, laying the city open. He'd watched the crazy walls of patchwork wooden tenements slide by, condos, arcologies, grim housing projects, more walls of plyboard and corrugated iron. (*Neuromancer* 87)

In this passage, the interiority of the inner city takes on an organic cast, that of being eviscerated by the road that makes its incursion into the heart of dystopian urban space, like a reversal of frontier exteriority. When Case and Molly visit an ancient seraglio in the heart of Istanbul, Molly kicks a pebble into a pond, notes the concentric circular pattern of waves she has created, and compares the pattern to informational entropy; however, this recursive pattern also represents the interiority of urban space, from suburbs to urban core. The interiority of the human body, however, is figured as machine-like:

> His teeth sang in their individual sockets like tuning forks, each one pitch-perfect and clear as ethanol. His bones beneath the hazy envelope of flesh, were chromed and polished, the joints lubricated with a film of silicone. (154)

The "hazy envelope" of organic matter, including the heart, is insignificant compared to the mineral components, bones which here are "chromed and polished" like a biomechanical engine. Similarly, Molly's naked flank appears to Case to resemble the fuselage of a war plane; at the seraglio, Molly "strokes the rusted flank of an iron doe," explaining that the Seraglio was "a sort of private whore-house" for the King. Both the organic body and the landscape have been invaded by or transformed into machinic forms, with the incursion represented as a wound.

In *Snow Crash*, by Neil Stephenson, a cyberpunk novel of the 1990s, the metaphor of suburb as geographical space is metaphorized in virtual space. Plots of virtual space are sold like real estate to individuals as a kind of recreational zone, much in the way of the summer cottage. Software is a status symbol in this future world; those who can afford the best have high-resolution "avatars," virtual bodies with detail and distinction, while those who have to rent their avatars appear in grainy black and white virtual bodies which are viewed as aesthetically contemptible. Virtual reality is not without its transcendent aspects, however; Ng, a programmer who was badly crippled in the Korean war when his bomber crashed, has created a beautiful virtual home for himself in which he has freedom of motion and appears as he did before the accident. In real space, cities are polluted to the point that parks are termed "sacrifice zones":

> WARNING. The National Parks Service has declared this area to be a National Sacrifice Zone. The Sacrifice Zone Program was developed to manage parcels of land whose clean-up cost exceeds their total future economic value.

In a future where parks are toxic waste zones, the only escape lies either in outer space or in virtual reality.

In *Blade Runner*, "a built landscape that exhibits most of the features Fredric Jameson was soon to associate with the cognitive, social, and architectural space of postmodernism" is visualized:

> From the opening scenes tracking Deckard through an internationalized bazaar that juxtaposes the high tech and the primitive, while blimps that resemble prehistoric sea life float in smoky air amid office towers whose walls are alive with images, we are in a world in which the body cannot locate itself in space, or consciousness in history, a society defined by an abandoned public sphere and an expanding rift between rich and poor, a built environment choked with waste and squalor." (McNamara 423)

McNamara asserts that "the urban landscape Scott [*Blade Runner*'s director] created, with which my analysis begins, is not merely a scenic compilation of empty allusions; careful reading reveals it to be the products of a specific history of capitalist development" (425). Corporate capitalism makes brand names an important part of the setting in *Neuromancer* and *Blade Runner* (also prominent in *Already Dead* and *White Noise*) that McNamara asserts are "the only signs of power" in the landscape. The Tyrell Corporation, which makes replicants, is housed within a giant ziggurat styled on the Egyptian pyramid and alluding to the slaves upon which it is built, the replicants who constitute "the business."

McNamara cites the hover car as a new technology for the wealthy and powerful. Landing pads are built on the tops of the ziggurats; the flying vehicle allows the driver to avoid contact with the ground-level crowds. In

Neuromancer, the car has become a comfortable, conservative form of travel for the wealthy. The Mercedes that carries Case and his co-workers through Istanbul needs no driver and speaks to its passengers about the tourist attractions along the way, a safe, maternal kind of interiority that protects them from the urban jungle outside. Cyberspace, too, has its maternal aspect; Istvan Csicsery-Ronay, Jr., comments upon the Greek origins of "matrix," an "artificial womb or a world," and upon "Case's orgasmic penetration of the Black Ice protecting Neuromancer's core--and with it the 'birth' of a new god" (236) similar to an apocalyptic second coming when Neuromancer and Wintermute merge.

Case's cyberspace deck substitutes as a vehicle, exciting and dangerous in its speed and in the possibility of a crash or, rather, a collision with a virus program that could result in brain death. The latest software, like the latest high-powered engine, lends Case "blind momentum as he hurtled across the infinite datascape" (261). Stephen Bayley, director of the design wing at the Victoria and Albert Museum and an aficionado of the car, states that "the idea of mechanical intercourse, that parody of the act of love, lies only a little beneath the surface of people who are fascinated with fast cars" (189). Gibson translates this pervasive analogy into a new medium when sexual acts are rendered in informational terms, the terms of the informational code in the matrix: "and then he was in her, effecting the transmission of the old message" (240).

As in *Neuromancer* and *Already Dead*, wounded landscapes are also prominent in *Gravity's Rainbow*. Bifurcating railway lines in Europe and the trails of skiers on the alps form "crisscrossing" patterns that resemble scars. Railway cars are "coupled and recoupled," "Alps, fogs, abysses, tunnels, bone-

deep labourings up impossible grades" depict the organic within the machinic in trains that correspond to beasts of burden (257). The land has been disarticulated in the interest of nationalities, "a single damaged landscape" cut into countries. The tracks of the railroad in marshaling-yards are compared to "layers of an onion cut end to end," lending a sense of organic interiority to the land.

A parallel construct in *Gravity's Rainbow* is that of vivisection. The interior becomes exteriorized when organs are relocated outside the body for observational purposes, a kind of voyeurism which is portrayed at its most perverse in the persona of Ned Pointsman, who finds torture stimulating: "and how much of the pretty victim straining against her bonds does Ned Poinstman see in each dog that visits his test stands . . . and aren't scalpel and probe as decorative, as fine extensions as whip and cane?" (88). In fact, Poinstman tries to acquire an orphan of the blitz as an experimental subject: "how Pointsman lusts after them, pretty children . . . to write on them new words of himself" (50). As in the nineteenth-century Max Von Weber painting, *The Anatomist* (Bronfen 6), the scalpel displaces the pen as an instrument of power in an analogy between the disarticulation of the body and the silencing or disarticulation of the voice of the powerless victim, whether animal or child. Poinstman also attempts to acquire Slothrop as an experimental subject, and later attempts to have Slothrop castrated as a substitute for vivisection that clearly has everything to do with power and social dominance.

Similarly, in *Great Jones Street*, DeLillo describes the fantasy of Bucky Wunderlicks during his party. Bucky is a rock star who has abandoned his

career, in the manner of David Bell in *Americana*, because he cannot cope with the shallowness of American mass culture:

> I thought of all the inner organs in the room, considered apart from the people they belonged to. For that moment of thought we seemed a convocation of martyrs, visible behind our skin. The room was a cell in a mystical painting, full of divine kidneys, lungs aloft in smoke, entrails gleaming, bladders simmering in painless fire. (*Great Jones Street* 82)

Most characters at the party have adopted product names, such as "Lycra Spandex," "Dr. Pepper," and "Vegemato." Lycra Spandex believes that if people would wear each other's underwear, world peace could be achieved. A filmmaker describes his work-in-progress, which involves using dynamite to create a man-made earthquake in order to film objects falling into the fissure. He complains that "if society wasn't so obsessed with false values, I would be permitted to use live animals in my shivers," his term for earthquakes. In this passage, the equivocation between interior and exterior corresponds to the reversal of shallow and deep cultural/ethical values. A religious luminosity emanates from internal organs in Bucky's fantasy of eviscerating his guests as a last resort to overcome their shallowness.

The interior/exterior distinction provides an example used by Pynchon to express the concept of the excluded middle. The Klein bottle illustrates the impossibility of determining the exact point at which inside becomes outside, or the reverse. The surface of the Klein bottle is a continuous curve in which the handle and the base of the bottle are joined. No sharp demarcation point can be found to define the boundary between the inside and the outside of the vessel;

there are only transitional regions between interior and exterior space. Similarly, the Möbius strip equivocates as the ribbon folds and the opposite plane comes into view; what goes unnoticed is the third surface, the edge between the two planes of the ribbon, which exists on a different length scale. At the core of the excluded middle, the boundary region of the singularity represents the image free of time, glowing with mystical energy like the eviscerated organs of Bucky's party guests.

The layered interiority of psychic space attains significance for Slothrop as an experimental subject. When Slothrop sleeps on Laslo Jamf's crypt, he fears an uncanny visit, the return of the repressed; his fears most resemble a vampire form, as if Jamf were the personification of vampiristic capitalism. As it turns out, Jamf had business dealings with Lyle Bland, the individual most personally responsible for the inflation of the mark. The other meaning of the repressed, for Slothrop, is the repressed memory of having been experimented upon as a child; during the first night spent on Jamf's grave Slothrop almost remembers, but the memory is "encrypted" or "encysted" (Derrida "Foreword"), introjected rather than incorporated, an entombed symbol that represents a lacuna in Slothrop's unconscious, rather than an experience integrated into his ego, described by Pynchon as "the empty circle in his brain" (283). John Johnston explains "that Jamf is the scientist who experimented on Baby Tyrone" and that "the novel often insists that sexual behaviour is the area where human beings are most susceptible to control, and that this vulnerability will always be taken advantage of by the They-system" (85). The encysted memory in Slothrop's brain is not unlike an implant placed there by his experimenters who

represent fascist control. Likewise, Slothrop represents an encrypted message code that he attempts to 'crack.'

A short time later, Slothrop experiences another uncanny encounter when he takes shelter in a children's playhouse on an abandoned estate. He finds a doll with blond human hair and lapis lazuli eyes. He steals her eyes and feeds her hair into a fire that he has started. As he does, he hears toys approaching from beyond the fire, automatons coming to life. Then he meets an immortal girlchild with whom he dances, and notices suddenly that the entrance to the playhouse is festooned with garlic bulbs. The fragrance from the garlic reaches him as the girl vaporizes from his arms. The interiority of the playhouse corresponds to the psychic interiority of Slothrop's unconscious and the almost-return of his repressed childhood memory. The doll and the phantom vampire girl remind him of Katje, but they also foreshadow his encounter with tiny Bianca, the eleven-year old daughter of Greta Erdmann.

In the description of Slothrop's sexual encounter with Bianca, scaled interiority begins to dominate the narrative: "Small as she is, she's been further laced into a tiny black corset, which compresses her waist now to the diameter of a brandy bottle" (469). The words "little" and "tiny" are reiterated descriptors for Bianca throughout the passage. Once inside Bianca, Slothrop suddenly realises that he is inside his own erection, and that his erection is the rocket; his orgasm is described in the terms of a rocket launching. This progression resembles that of the rainforest in *Already Dead* and of cyberspace in *Neuromancer* in that an interior iteration appears to increase in scale, instead of decreasing as smaller iterations should, due to the complementary perspective in the smaller scale. Slothrop's penis is conjectured to be a prosthetic made of

Imipolex (see Ch 3); a later account by Gretel, Thanatz's wife, describes a man who "had strapped on a gigantic Imipolex penis over his own" (488). The woman's experience seems to reverse Slothrop's experience of compression:

> There was an abyss between my feet. Things, memories, no way to distinguish them any more, went tumbling downward through my head. A torrent. I was evacuating all these, out into some void . . . from my vertex, curling, bright-colored hallucinations went streaming . . . baubles, amusing lines of dialogue, objets d'art . . . I was letting them all go. Holding none. (488)

Gretel's account intimates a sense of expansion, the opposite of the black hole in which a process of compression occurs; here, information expands out into the void, like an expanding universe at the other side of a singularity. Pynchon views the human crotch as a singularity: Gretel refers to her "vertex," which corresponds in shape to the vertex at the point of the type of singularity described as a cusp.

When Slothrop begins to disperse, he finds himself approaching the tail of a Gaussian curve, narrowing to a point, represented on the landscape as a "colossal curved embankment" (509). Kurt Mandaugen explains that Slothrop is losing "temporal bandwidth," another reference to increasingly fine segments of time approaching infinity. Slothrop, as an informational entity, is being stretched into a singularity (or a black hole, as noted by Hayles [Ch 2]). Pynchon's example seems to be a normal curve for intelligence: "Soon more champions, adepts, magicians of all ranks and orders will be in the field than ever before in the history of the game. . . . The Gauss curve will herniate toward the excellent"

(508). Slothrop will disperse and become invisible because he belongs closer to the mean.

Slothrop's demise is noted to have begun "at least as early as the *Anubis* era" (509). The *Anubis*, the jackal ship, owned by Thanatz the fascist, signifies social entropy because it is a site of perverse disorder; the *Anubis* has a carnivalesque atmosphere of orgy and abundance. Anubis, Egyptian god of the dead, was reputed to consume cadavers opportunistically like the jackal. While citizens on the shore are starving, dark-skinned waiters serve food, drink, and drugs to the wealthy passengers, and "springtime corpses caught in the wreckage twist and flow as the *Anubis* moves by overhead. Under the bowsprit, the golden jackal, the only being aboard that can see through the fog, stares ahead, down the river" (468). The jackal ship, like Meadows' vehicle encapsulated in dust and Frankheimer's house surrounded by fog, is encapsulated in blind interiority that makes its passengers oblivious to connections; passengers of the *Anubis* fail to consider connections between events of the war and the impropriety of their Utopian pleasures in the context of mass suffering.

Slothrop meets Bianca on the ship; Bianca's paternity is uncertain because the men who copulated with her mother wore jackal masks. This uncertain paternity corresponds to the dilemma of Franz Pokler, who is never sure which girl who visits him is his real daughter (see Ch 3). In its historical importance, indeterminate paternity stands for social entropy, a breakdown of the nuclear family as the ballast of society. The social entropy implied by the nature of the *Anubis* and its passengers corresponds to Slothrop's personal entropy; having scattered his genetic material throughout the Zone, his

informational existence fragments. Slothrop is remarkably over-represented in bureaucratic records because of his infancy as an experimental subject and the contract between his father and Jampf, as well as the continued scrutiny of Pointsman and the secret service. His informational demise is not surprising because he constitutes a prime example of the statistical person.

The cultural entropy of war, in which art and culture suffer under the ravages of bombings, appears in abundant descriptions of architecture reduced to rubble:

> the leaning long splinters and sagging mesh, the prone and noseless caryatids, rust already at nails and naked threadsurfaces, the powdery wipe of Nothing's hand across wallpaper awhisper with peacocks spreading their fans down deep lawns to Georgian houses long ago, to safe groves of holm oak. (24)

This passage evokes the past and induces the poignancy of loss that war engenders. In the interest of technology and scientific research, art, culture, and of course life are sacrificed. In *Slaughterhouse-Five*, the beautiful city of Dresden, a centre of art and architecture, is leveled by a fire bomb as a sacrifice, not because the city houses any military installation or weapons industry, but simply as a strategic show of force intended to intimidate the enemy into surrender. "The war has been reconfiguring time and space into its own image," and the war is in the interest of technology (*GR* 257). As in *Neuromancer*, where Chiba is an outlaw zone for illegal research which allows technology to advance quickly outside the limits imposed by ethicality or legality, the war allows money to be withdrawn from its usual purposes, such as luxury items and food, art and scholarship, and rechannelled into research

for weaponry. One example which is repeated in the text is that the potato crop has been requisitioned to make rocket fuel, which requires alcohol as a main ingredient.

In contrast, the rubble atop Slothrop's desk evokes no poignancy, but rather disgust at the accumulated layers of bureaucratic and personal waste (18). The trash on Slothrop's desk has formed layers, the smaller bits sifting to the bottom, in a description reminiscent of an archeological dig. This sifting movement implies that the force of gravity is at work universally and here, that gravity is the sole ordering principle. The description takes the form of a detailed list of itemized trash resembling DeLillo's description of discarded consumer items; DeLillo's description has narrative implications, and Pynchon's may also be read in that sense. Lone pieces of jigsaw puzzles suggest something about the narrative structure of the text and the task Pynchon sets for the reader. The bits of disconnected imagery in the puzzle pieces correspond to Pynchon's use of imagery within the complex narrative. Often rich descriptions of space stand out in the frenetic pace of events, without any obvious relevance.

Pynchon's descriptions of space represent the singularity, because his reverent treatment of the image effectively induces the temporal retardation of the approach to the zero:

> She crosses the complex room dense with its supple hides, lemon-rubbed teak, rising snarls of incense, bright optical hardware, faded Central Asian rugs in gold and scarlet, hanging open-ribbed wrought-ironwork, a long, long downstage cross, eating an orange, section by acid section, as she goes, the faille gown flowing

> beautifully . . . the light from the street lamps comes in through philodendron stalks and fingered leaves arrested in a grasp at the last straining away of sunset, falls a tranquil yellow across the cut-steel buckles at her insteps and streaks on along the flanks and down the tall heels of her patent shoes, so polished as to seem of no colour at all past such mild citrus light where it touches them . . . the light along her shoes flows and checks like afternoon traffic. . . . The smells of burning musk and sandalwood, of leather and spilled whisky, thicken in the room. (149)

The suspension of the moment is aided by the image of the light hesitating in the grasp of leaves in the sunset, "straining away" in a liminal moment, the moment of hesitation before transition. The liminal moment is equivocal, like the light reflected upon patent leather so that the shoes appear to disappear like mirrors in the chiaroscuro of presence/absence. The flow of silk and the flow of light produce a resonance; the slowly rising smoke suggests stillness, an atmosphere of suspension. As the woman steps away, the impressions of her shoes in the carpet slowly decompress. The flow of light is compared to the slow crawl of rush hour traffic, halting and continuing. The accumulation of smells in the room implies stillness in the air, a compression or density of odour. The impression created is one of laminar flows and eddies, both in the light which appears to move across the shoes (though in fact it is the shoes that are moving), in the slow movement of the smoke, and the flowing movement and hesitation of the woman. The eating of the orange mirrors this hesitance in all things, the segments suggesting moments in time slowing to infinity at the singularity (see Ch 1). The ribbed wrought-iron augments the segmentedness

of moments in time. The woman is Nora Dodson-Truck, whose husband is also portrayed in the equivocal terms of chiaroscuro (see Ch 3). Nora is a devotee of "the ideology of the zero," the mystical worship of the singularity.

Accordingly, light and shadow have a liminal significance when Geli Tripping takes Slothrop to the Brocken mountain range at the spring equinox; these peaks are the site of May Day Eve celebrations and rituals for local witches because of their liminal significance:

> As the sunlight strikes their backs, coming in nearly flat on, it begins developing on the pearl cloudbank: two gigantic shadows, thrown miles overland . . . God shadows. Slothrop raises an arm. His fingers are cities, his biceps is a province . . . not ordinary shadows, either--*three-dimensional* ones, cast out on the German dawn . . . But the Brockengespenstphanomen is confined to dawn's slender interface. (330-1)

As the sun crosses the equator, the oblique angle of the sun's rays carries a shadow from the tallest peaks for miles. The cloudbanks have the lustre of pearl as the light is refracted from within, as if layers of nacre were reflecting the light back out of a three-dimensional gemstone. The orient of the pearl results from layered interiority in the form of nacre. Slothrop notices evidence of pagan ritual celebrations of the bifurcation point in seasons, which resonates with repeated references to "the ideology of the zero" and its mystical significance. The "slender interface" exemplifies the equivocal point where a boundary is crossed or a singularity is reached.

The ultimate equivocal moment exists at the singularity, and Pynchon's narrator sees singularities everywhere:

> Consider cathedral spires, holy minarets, the crunch of trainwheels over the points as you watch peeling away the track you didn't take . . . mountain peaks rising sharply to heaven, such as those to be noted at scenic Berchtesgaden . . . the edges of steel razors, always holding potent mystery . . . rose thorns that prick us by surprise . . . even, according to the Russian mathematician Friedmann, the infinitely dense point from which the present Universe expanded. . . . In each case, the change from point to no-point carries a luminosity and enigma at which something in us must leap and sing, or withdraw in fright. (396)

"The change from point to no-point" is the equivocal instant when plus changes to minus and an abstract object of fear and fascination. Pynchon describes this vanishing point as "luminous," which suggests that the transcendental image exists at the end of time. The concept of infinity attains a mystical significance, even a God-like status. The singularity is a point of great energy, but here it is also associated with the rocket and its destructive power, because the narrator goes on to describe the point at the tip of the rocket, which is its fuse, as a singularity. Here, the singularity also represents apocalypse, the crushing, stretching, disintegrating processes of the black hole, as well as the destructive force of the bomb.

Slothrop becomes a singularity when he lies "spread-eagled" at a crossroads (625). The significance in European folklore of the crossroads as a place to hang criminals and to dig for the mandrake root makes clear the mystical power of the cruciform; the mandrake root has a forked shape with a vertex. Slothrop has been contemplating the mandala, a cross with a circle

around the intersection, and sees it as an emblem representing the rocket from below. These shapes suggest the equivocation between creative and destructive potentials in energy, like the rainbow serpent, which represents both the creative and destructive forces of nature (Ch 3).

The point at which the Uroborus swallows its tail represents a discontinuous function, which is a bifurcation. Although the circle, at first, seems to represent continuity, a continuous function, in a chaological interpretation, in all likelihood, the Uroborus follows the pattern of a strange attractor, never exactly duplicating the same cycle. Pynchon describes "visible serpent coils that lash up above the surface of Earth's deep breast," suggesting the spiral shape of the DNA coil rather than an exactly repeating cycle. When the tail disappears into the jaws of the serpent, a liminal moment occurs, and a new level of organization begins. Pynchon wishes to complete the cycle, countering the representation of the parabola with that of the Uroborus. Pynchon's narrator describes the architectural designs of Albert Speer representing the rocket's path: the entrance to the rocket works, "Autobahn overpasses, sports stadiums, u.s.w." have been designed to represent the trajectory in the shape of a parabola (298).

The description of the rocket works includes "a Nazi inspiration like the parabola, but again also a symbol belonging to the Rocket" (299). Two tunnels have been built, each over a mile long, into the base of a mountain. The two tunnels represent the Nazi insignia "SS," and represent a double lightning strike. Between the two tunnels run communicating tunnels, so that the structure resembles "a ladder with a slight S-shaped ripple in it" which, if not flattened in space, could represent the double helix of DNA strands (300). The rainbow

serpent could also be figured in this way, as one level of the coil of genetic material, both a creative and a destructive force in nature which passes on life, disease, and mortality, the death instinct. Blicero alludes to this when he imparts to Gottfried that during sex he has infected the boy with death, just as fathers infect their sons in the genetic sense that aging, the body's entropy, is triggered by switches in the genes. Similarly, the architect who designed the Mittelwerke has included entropy in his designs so that his structures inevitably fall down.

The other link between the rocket and the tunnel design of the Mittelwerke is in the representation of the double integral, the representation of two variables in integral calculus:

> But in the dynamic space of the living rocket, the double integral has a different meaning. To integrate here is to operate on a rate of change so that time falls away: change is stilled. . . . The moving vehicle is frozen, in space, to become architecture, and timeless. It was never launched. It will never fall. (301)

This passage makes Pynchon's intent clear, his intent to represent the image as timeless, just as the image of the rocket suspended over the "Orpheus Theatre on Melrose" in the final passages figures infinity as the zero (754). Pynchon uses the image as one method of subverting cause-and-effect plotting. To integrate means to solve the equivocal riddle, to reach a state of intellectual non-entropy, and to know the unknowable.

In a sense, this integration is the excluded middle that Pynchon represents through the use of colour. The rocket is described as a peacock, "*Der Pfau,*" because its tail displays the colours of the rainbow; the V2 was

called "Pfau Zwei" (223). "Gravity's rainbow" refers to the rocket's arc through space, the parabola of its trajectory as its fuel burns in a rainbow flame. Equivocal figures are represented in black or white, or sometimes both with the use of chiaroscuro. Significantly, while in the company of Dodson-Truck (see Ch 3), Slothrop witnesses the purest sunset he has ever seen:

> This is the kind of sunset you hardly see any more, a 19th-century wilderness sunset, a few of which got set down, approximated, on canvas, landscapes of the American West by artists nobody every heard of, when the land was still free and the eye innocent, and the presence of the Creator much more direct. Here it thunders now over the Mediterranean, high and lonely, this anachronism in primal red, in yellow purer than can be found anywhere today, a purity begging to be polluted . . . of course Empire took its way westward, what other way was there but into those virgin sunsets to penetrate and to foul? (214)

A pre-technological sunset has the most vibrant colours, associated with untouched nature, untainted by the smog of industry. As in *White Noise*, speculation arises about a change in sunsets:

> Shaken skies pure as a cyclorama. But these sunsets, out here, I don't know. Do you suppose something has exploded somewhere? . . . the colours are so different now. Volcanic ash, or any finely-divided substance, suspended in the atmosphere, can diffract the colours strangely. (642)

The speaker, a colonel, searches for a pattern in the altered colours of the sunsets, looking for a cause for this effect. Any violent discharge of energy

could be responsible for suspended particulate. But the colonel's nervousness may have more to do with information about atomic weapons, the ultimate explosion, even more powerful than the rocket, than concern about volcanic activity.

Hayles and Eiser use the progression of colour descriptors in the narrative to explain Slothrop's fragmentation ("Colouring *GR*"). Slothrop has both a natural and a synthetic aspect to his nature, the synthetic aspect being the Imipolex prosthetic implanted by Jamf during Slothrop's infancy. The classification of colour has both a natural and a synthetic system; the Newtonian classification scheme is based upon the prism or the rainbow, while the synthetic classification scheme was developed by the dye industry in order to aid in reliable mass production. What Hayles refers to as the "routinization" of colour corresponds to Seltzer's concept of the statistical person in the sense that social entropy is augmented by the categorization of unique items into bureaucratized norms. There is also a connection between the dye industry and weapons; the development of the first synthetic dye, known as "Tyrian purple," (hence, the naming of Tyrone) stimulated the development of chemical technology that also resulted in the development of explosives (15).

In the Newtonian classification system, complementary colours cancel each other out to yield either white or black. Characters are surrounded by their own colours (or non-colour), white in the case of Weissman and black in the case of Enzian. Hayles asserts that Slothrop starts out at opposite ends of the synthetic and the natural colour scales and as the narrative progresses, his colours move along the scales in opposite directions until they reach the opposite ends and cancel each other out. In a parenthetic reference to

Slothrop's undoing, the landscape is described as rubble softened by the growth of French thyme, which is mauve. Speculation exists that Slothrop's fragments may have developed and taken on individual status. A sunset follows these musings, "a long cat's-eye of bleak sunset left over the plain tonight, bright gray against a purple ceiling of clouds, with an iris of darker gray," suggesting Slothrop's Tyrian purple and green are cancelling out into gray (*GR* 740). Later, the bright gray fades to silver in the description of "the last horse," "tarnished silver-gray, hardly more than an assembling of shadows" in chiaroscuro (*GR* 749). The Germans have sacrificed their horses to the war, the System has sacrificed Slothrop, and Blicero is about to sacrifice Gottfried.

Layered interiority dominates in the description of Gottfried in his Imipolex shroud within the rocket. Weissman has stuffed a white kid glove into Gottfried's mouth, in a collapsed interiority of inside/outside indeterminacy: considered from the exterior, the glove can be termed a phallic symbol, or, conversely, a vaginal symbol from the interior: "The glove is the cavity into which the Hand fits, as the 00000 is the womb into which Gottfried returns" (750). This is an appropriate emblem for Gottfried, who sometimes dresses in drag and other times wears army fatigues when with Weissman/Blicero, in an equivocation of gender roles. The equivocal point between these binary oppositions is "the zero," the singularity. Weissman plans a crash in which his lover Gottfried will be killed in the rocket as it strikes its target. Gottfried represents a sacrifice to technology, emblematizing the young people, the life, the resources sacrificed to war in the interest of technological development.

Seltzer's discussion of the wound has a significance similar to that of the glove because he describes the wound as an interface or an equivocal point

between interiority and exteriority. What Seltzer calls "the switch-point, or crash-point, between inside and outside," could also be termed the bifurcation point or the singularity (*Death and Life* 264). In recursive symmetry, a new layer with a different length scale appears after a bifurcation. The interior-exterior distinction represents a dualistic reduction of the concept of recursivity, but the layering effect appears in Seltzer's description of the public/private duality in his description of the erotics of car crashes: "the shock of contact between bodies and machines (eroticized accidents: real, planned, simulated) is also the traumatic reversal between private fantasy and the public sphere . . . the subject of wound culture is not merely subject to recurrence but to the recurrence of recurrence itself" (265).

The witnessing of accidents, as in the news media, or the witnessing of planned crashes, as in Hollywood movies, has significance in *White Noise* as an aspect of popular culture. Murray Siskind teaches a course in car crashes. Countering the view of his students, who consider car crashes a terrible waste of resources, Murray sees the cinema of car crashes as a glorious expression of innocence and fun at which the American film industry excels, "positive events, full of the old 'can-do' spirit. Each car crash is meant to be better than the last. There is a constant upgrading of tools and skills, a meeting of challenges" (218). Murray does not seem to consider the pursuit of more spectacular accidents as an example of "brain fade," the concept he used to explain the fascination viewers feel for catastrophe (see Ch 2). Neither does he consider a correspondence between this need to improve the spectacle, "this tendency toward grandiose deeds, toward pursuing a dream" as similar to the *Guinness Book of World Records* and Mercator's desire to be the best at what he does.

The consumption of violent spectacles has more to do with marketing and profit margins in the media and film industry, mythologized for the individual as the American dream:

> "The people who stage these crashes are able to capture a lightheartedness, a carefree enjoyment that car crashes in foreign movies can never approach."
>
> "Look past the violence."
>
> "Exactly. Look past the violence, Jack. There is a wonderful brimming spirit of innocence and fun." (219)

As a figure of dramatic irony, Murray Suskind, not unlike the snake in the Garden of Eden, presents a seductively irresponsible theory of hedonism. His students ask, "What about the sheer waste, the sense of a civilization in a state of decay?" (218). Their concern is with the meaninglessness of mindless pleasures and thrillseeking as a sign of social entropy.

In discussing his years as a travelling sports writer, Murray asserts that "there was only one topic of conversation. Sex and death" (217). Jack points out that sex and death are two topics that he would not like to think of as "inextricably linked" (because Jack likes sex but desperately wishes to avoid death) (217). Murray explains that "on the road everything is linked. Everything and nothing, to be precise," a strange loop of equivocal significance. This comment has a significant correspondence to the experience of Clarence Meadows in *Already Dead* as he drives through the sand storm, viewing objects which suddenly appear before him and vanish behind him, like frames of slow-motion videotape, except that Meadows does not see the connections between events, and nothing is linked. Murray's comment refers to the landscape

transformed by technology so that every landmark represents either sex, death, or both, including "hotel rooms, planes, taxis, restaurants" (217).

On the trip to the evacuation site, Jack and his family witness a traffic accident. A helicopter shines a spotlight down on the scene of mangled metal and blood-spattered people, glass, and snow. Jack notes that his family feels "curiously reverent, even uplifted by the sight of the heaped cars and fallen people," an oblique reference to Murray's theory that car crashes represent the American dream (*WN* 122). The description suggests a sense of achievement or pride in an American accomplishment, the building of the freeway system that connected all regions of the country and transformed the frontier into a tourist attraction. (Roughly at this point, Jack notices a sign advertising the most-photographed barn in America, a tourist attraction.) The reaction to the roadside scene also indicates the importance of the wounded body as spectacle. Seltzer notes that "the body has insistently become relevant as spectacle or representation--and, most insistently, as spectacle or representation of crisis, disaster, or atrocity" (*Death and Life* 35). Two people at the scene are bleeding. The wound, as an equivocal point or emblem, attains the mystical significance of the singularity, "the ideology of the zero," which would offer another perspective on the awe and reverence the family experiences upon viewing the interface between the exterior and the interior of the injured travellers in the form of the wound.

Another accident described during the exodus involves a Winnebago and a snowplow. Jack assumes the occupants of the vehicles have left the scene. According to Jack, "the recreational vehicle mounted the plow" (125). He also describes the scene as "the scrap metal burial mound" of the two vehicles

(125). Jack does not seem to realise that he has conflated sex and death in these descriptions, just as Murray has commented that on the road everything is linked and that sex and death are one topic. The analogy between vehicles and bodies, the organic and the machinic, corresponds to Clarence Meadows' observations (above) upon the embarrassing intimacy between two cars that have merged on the highway, "two cars stopped in a kind of embrace, the huge intimacy of which he felt almost embarrassed to be witnessing," like elephants in a public zoo (*Already Dead* 168). As well as the equivocation between the categories of the organic and the machinic, implicit in these descriptions is the equivocation between public and private. Like the hotel room, which is both public and private, the vehicle equivocates on this point of public and private spheres. (In *Already Dead*, Nelson Fairchild keeps a bathrobe in his convertible, which reminds us that the vehicle is a public sphere in which a bathrobe seems inappropriate attire when viewed from the outside, yet, at the same time, the vehicle feels like a private space to its passengers.) In *White Noise*, the family sits together behind the windows of its car, viewing other families in their cars, and shoppers in a store by the highway who look out at them. The privacy of the vehicle is partial or illusory, a private space open to public view.

The car serves as a place to eat when the family wants fast food: "The car was sufficient for our needs. We wanted to eat, not look around at other people" (231). Neither do the family members wish to see or communicate with each other over dinner; they eat facing forward in the car, "looking only inches past our hands" (231). Jack comments that "this is the edge of the observable universe of food," a remark similar to Johnson's description in his novel *Angels*, as noted by Seltzer, that the "fast-food universe" is "a tiny world half machinery

and half meat" (62). The car also fits this description; as Jack notes, "the interior of the car smelled of grease and licked flesh," though the grease could as well be bearing lube and the flesh could as well be human. The family wears coats and hats while they eat, suggesting a layered interiority within the car. This insular moment is penetrated by a child's question about outer space, followed by "a pause like a missing tick in eternity," the equivocal moment between interiority and exteriority, as "we all stopped eating. A worried silence ensued" (232). Focussed as they are upon the interior significance of food, the suggestion of outer space evokes a tense shift of consciousness.

The fast food phenomenon provides an example of social entropy. Fast food franchises represent sameness and predictability, the hallmarks of social entropy. Sameness and predictability are considered positive attributes in a society that values these characteristics, if only to avoid contamination by deadly strains of bacteria or unexpected/unwanted innovations in food style. The fast-food franchise corresponds to the hotel chain in providing standardized products and services, but these standardized characteristics may not only induce boredom, but also reflect upon the individual who frequents these establishments. Eating mass-produced food reflects upon the individual, as if "you are what you eat," just as the wearing of mass-produced clothing asserts that you are what you wear: the individual is a small, medium, or large size, an A, B, or C cup, a Big Mac or a Whopper; the needs and desires of the individual are as mass produced as her or his person. For those aware of the entropic significance of sameness, any individual aberration achieves significance, even if it is only the remarkable ugliness of a character like the chancellor of Jack's university or of Ratz in *Neuromancer*.

At the same time, aberrance is a risky proposition in a society that values sameness. Jack Gladney's language instructor, Howard Dunlop, provides an example. The name Dunlop suggests American "know-how," as Murray might say; Dunlop was the inventor of the inner tube and a large manufacturer of tires, and therefore a significant name in the transformation of the American landscape by technology. Jack chooses this man to teach him German because he is a recluse. Jack's ignorance of the German language is not only an embarrassment, but also potentially ruinous for his career--the only people who share his secret are Babette, Murray, and Howard (though Jack never calls him by name). The instructor seems motivated and competent, yet things begin to go awry when Jack notices that his instructor is piling debris against the windows and outer walls of his room, as if to shut out the threatening, toxic world outside (or perhaps the transformed landscape for which his namesake is responsible). Significantly, Dunlop's technique is the opposite of Gladney's: Jack has taken to expunging debris from his home, to the point where he is throwing away perfectly good consumer items only because they are not perfectly new. Dunlop, on the other hand, retrieves the unwanted debris of others from the dump and from ravines, brings it into his home, and piles it against the walls.

One day, during a German lesson, Jack notices that Dunlop wears his shirt-sleeves rolled up exposing thermal underwear fraying at the cuff. The undershirt represents an equivocal point, a medial layer of interiority, something visible on the outside that should remain on the inside (like the significance of vivisection in *Gravity's Rainbow* [see above], the fraying undershirt represents a wound, a site of vulnerability, and an equivocal point between the public and

the private), and in this case, the shirt also represents entropy because it is wearing out. At a later lesson, the instructor reaches into Jack's mouth to grasp his tongue in an attempt to aid Jack in correct German pronunciation. Jack notes that no one has handled his tongue before; the moment has an intimacy that is appropriate for the import of the secret Jack has chosen to share with Dunlop, yet the impingement of the outer upon the inner, of exteriority upon interiority, of entropy upon negentropy, is overwhelming for Jack and perhaps even suggests that Jack's lack of German language competence has the significance of a wound.

In discussing Howard Dunlop, Jack mentions to Murray that "there's something about him. I'm not sure what it is exactly" (237). When Murray suggests that Dunlop is "flesh-coloured," Jack cannot reject Dunlop on that basis because it represents one way in which Dunlop is normal, fits the standard, or is entropic in his sameness, though one might suggest that he is "abnormally normal" in being flesh-coloured. (Seltzer discusses how the serial killer represents the "mass in person" by being abnormally normal or by blending into a crowd.) However, when Murray calls Jack four days later, in the middle of the night, to tell him that Dunlop has the look of someone who "finds dead bodies erotic," this suggestion causes Jack to end relations with Dunlop (though one has to wonder why Murray has so much insight into this aberration, or why he reads *American Mortician*) (238). Jack's fear and complete avoidance of death makes the concept of necrophilia so abhorrent that even the fanciful suggestion that Dunlop might be a necrophiliac labels him as a person to be shunned. Jack admits that the lessons will be missed, but the entropy that Dunlop represents must be jettisoned even more violently than Jack's possessions.

Murray's observations create a resonance in Jack's mind because Jack has noted to himself that Dunlop's "complexion was of a tone I want to call flesh-coloured," as if Dunlop might be 'already dead' or somehow synthetic (32). (Jack fears that his impending death is artificial because it is chemically induced, so this offers another way in which Jack finds Dunlop disturbingly like himself.) Not unlike Jack, Dunlop has a bland face. Jack has been described as having, "light hair, washed-out eyes, pinkish nose, nondescript mouth and chin, sweaty-type complexion, average jowls, slumped shoulders, big hands and feet" (163). In addition to these similar features, Jack and Howard are about the same age.

Jack begins to feel that his instructor is forming a dependence upon him because Jack is the only person to whom he talks, and Jack is horrified by the implication of such intimacy. However, Jack's social circle may also be limited; mostly, Jack socializes with his family and relatives, and with Murray who is a new friend; Jack flees the company of the New York émigrés because of their tendency to discuss death. Howard is a "former chiropractor" but does not explain why he no longer practices, which might augment Jack's career anxieties. Dunlop reads *The Tibetan Book of the Dead* in German, just as Jack reads *Mein Kampf* in translation. Jack's fear of Dunlop results from their similarities, and Jack dreads becoming more like him, though in some respects, for example his tendency to embrace death rather than to shun it, Dunlop represents the mirror image of Jack. But both Jack and Dunlop insulate themselves against a death-obsessed culture, each in his own way.

Dunlop's avoidance also takes the form of never leaving his room, according to Murray. Jack too has avoidant tendencies, as illustrated in his conversation with Vernon Dickey (Ch 3). Jack projects his avoidance onto his

town, observing that "it is the nature and pleasure of townspeople to distrust the city" (85). The residents of towns view cities as sources of entropy to be resisted; the town represents a pocket of negentropy that jettisons corrupt ideas and trends. This attitude suggests another way in which Murray takes the role of the serpent in the garden: Murray constantly explains his attitudes by stating that he is from New York. Responsibility for the heat death of the universe rests squarely upon cities:

> You get off the train and walk out of the station and you are hit with the full blast. The heat of air, traffic and people. The heat of food and sex. The heat of tall buildings. The heat that floats out of the subways and the tunnels. It's always fifteen degrees hotter in the cities. Heat rises from the sidewalks and falls from the poisoned sky. The buses breathe heat. Heat emanates from crowds of shoppers and office workers. The entire infrastructure is based on heat, desperately uses up heat, breeds more heat. The eventual heat death of the universe that scientists love to talk about is already well underway and you can feel it happening all around you in any large or medium-sized city. Heat and wetness. (10)

The city is portrayed as a hellish, hot, corrupted place, like Sodom and Gomorrah, or Kansas City in the 1950's musical *Oklahoma!*; Murray refers to the "sexually cunning people" (of which he is one) found in cities. The cultural sophistication of cities is regarded as "one or another kind of pornography" (85). Murray's reading material includes *The Tibetan Book of the Dead*, *American Mortician*, and *American Transvestite*, all evoking associations of sex or death. Even the parking of cars has a sexual significance: Murray goes into "small

embarrassed raptures" over angle parking because of its quaintness, in his view; Jack observes that in small towns angle parking "avoids confrontation, the sexual assault motif of front-to-back parking in teeming city streets" (257).

Murray states that he "can't help being happy in a town called Blacksmith" (11). Many aspects of the landscape described in *White Noise* have historical significance, and the name of the town refers to the nineteenth century, before ironwork was mass produced. Iron City, by contrast, alludes to the early twentieth century, "a center of abandonment and broken glass rather than a place of fully realized urban decay," a large town rather than a city with a crumbling urban core. The large town represents a site of regret, bleakness, and abandonment resulting mainly from the popularity of the car and the building of freeways that allowed families to move to suburbs and to small towns like Blacksmith. Jack describes his neighbourhood as having been a wooded area, but it has become a residential area with a nearby freeway and the white noise of traffic sounds like "dead souls babbling at the edge of a dream" (4). The encroachment of the inanimate across the landscape in the form of technology represents a loss of spiritual life to DeLillo.

Blacksmith has the prewar sensibility of two-story buildings and unhurried commerce. Murray and Jack discuss nostalgia, and Murray comments that it is possible to feel homesick for a place even while being there, implying that the impending loss of place or of the ambiance associated with a particular place as a result of progress resides in the mind at all times, an awareness of impending social change due to technological advances. Jack describes a form of planned entropy in architectural design envisioned by Albert Speer which was intended

to create poignant feelings for the past and to manipulate the emotions of future generations in order to enhance feelings of nationalism.

For Jack, who fears time, the past is a retreat. Jack associates change with death. He has burrowed deeply into the heart of middle-America in order to avoid impending change in "the big city" where change occurs first. Similarly, Jack confesses, "My head was between her (Babette's) breasts, where it seemed to be spending a lot of time lately" (296); Jack regresses to early childhood in an attempt to avoid death. Jack also associates open spaces with death and vulnerability: "Small, weak, deathbound, alone. Panic, the god of woods and wilderness, half goat" (224). In speculating about Winnie Richards, Jack may be projecting his own fears when he considers, "Maybe she had a phobia concerning open spaces, although the spaces at the college were mainly snug and quaint. Perhaps the world of people and things had such an impact on her, struck her with the force of some rough and naked body," perhaps a goat-like body (185). Jack's nostalgic sense of the frontier gothic has a primal timelessness, but of course there is no escape from death, whether in snug interior spaces or in small towns.

When Jack believes he is facing death personified, he pauses in his avoidance and contemplates a scenic paperweight containing a representation of the Grand Canyon:

> Inside the plastic disk floated a 3-D picture of the Grand Canyon, the colours zooming and receding as I turned the object in the light. Fluctuating planes. I liked this phrase. It seemed the very music of existence. If only one could see death as just another

surface one inhabits for a time. Another facet of cosmic reason. A zoom down Bright Angel Trail. (243)

The *Tibetan Book of the Dead* figures death as a journey, but under the influence of mass culture Jack begins to view death as the equivalent of a tourist attraction. Any suggestion of spirituality is reduced to a trite postcard by means of mechanical reproduction. Murray has recommended that Jack adopt some spiritual belief like reincarnation; he gazes at his palm and considers cosmology reduced by scale to the size of a fingerprint, a "life terrain" (243). Jack, in his death-journey, takes a high-tech pathway.

Jack journeys to Autumn Harvest Farms, a new diagnostic facility gleaming with stainless steel, probably named with the intent of being less threatening (like Granny's Cancer Clinic) and to reassure the patient with familiarity. But Jack feels a tightening, a scaling down in labyrinthine layers: "They scanned and probed in room after room, each cubicle appearing slightly smaller than the one before it, more harshly lighted, emptier of human furnishings," the "mazelike halls" leading to colder, more advanced, more technical interiority, even more microscopic than the universe of food or the interiority of the vehicle. The technician informs Jack that "we can see more deeply, more accurately" with these advanced imaging systems (277). Hence, interiority offers no safety for Jack. The interior of his body betrays him with a nebulous mass, while the interior of his mind torments him with visions of Mr. Gray making love to Babette.

The mind is figured as multi-layered or as containing levels of interiority. Murray discusses the attractive features of women, including "the mind of a woman. The delicate chambering and massive unidirectional flow, like a

physics experiment" (11). Jack observes Babette sleeping, and comments that "she was many levels down, a girl again, a figure running in a dream," like the nymph on the Grecian urn. The interiority of the mind, with layers of consciousness, also resembles the interiority of the supermarket inasmuch as Murray insists on referring to the layers of psychic data present in the supermarket and to *The Tibetan Book of the Dead*, as if to suggest that the *bardos* of Tibetan mysticism have corresponding layers of consciousness or spirituality in mass culture. This concept may be the most ironic found in *White Noise*, because the outward distractions of consumerism hardly resemble the inward meditations of Eastern mysticism, except perhaps for the universality of white noise, which can be either a mantra or media babble, and for the motivation of mind control found both in meditation and in advertising.

DeLillo may be parodying Roland Barthes' observations regarding design principles and worship:

> I think that cars today are almost the exact equivalent of the great Gothic cathedrals: I mean the supreme creation of an era, conceived with passion by unknown artists, and consumed in image if not in usage by a whole population which appropriates them as a purely magical object. (95)

The mathematical division of space, as in a cathedral or in the design of a sports car, evokes a response of awe in its observers. The redesign of supermarkets in the 1980s generated excitement in consumers who suddenly had more choices, an overwhelming abundance of gourmet items to sample, which Murray compares to "some crossroads of the ancient world, a Persian bazaar or boom town on the Tigris" (*White Noise* 169). Jack notes that fruit in the produce

section looks "carefully observed, like four-colour fruit in a guide to photography" (170). Jack's comment refers to the design principles in use in the marketing of any product, even the organic kind. "The fruit was gleaming and wet, hard-edged"; the description resembles that of a glossy photograph of a red sports car rather than a MacIntosh apple.

Perhaps Murray's comment on the supermarket as a mystical place stems from the observation that the most effective design principles are those readily observable in nature. The Fibonacci sequence, for example, constitutes a universal design principle expressed in a mathematical formula related to the golden mean. Peitgen explains:

> The beautiful relation between the Fibonacci sequence 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, . . . and the golden mean ½ (1+ the square root of 5) has, over several centuries, inspired scientists and artists alike to wonderful speculations. It is almost ironic that mathematics and physics at the most advanced levels have recently taught us that some of these speculations, which motivated Kepler, among others, to speculate about the harmony of our cosmos, have an amazing parallel in modern science: it has been understood that in scenarios, which describe the breakdown of order and the transition to chaos, the golden mean number characterizes something like the last barrier of order before chaos sets in. Moreover, the Fibonacci numbers occur in a most natural way in the geometric patterns which can occur along those routes. (Peitgen 153)

The mathematical relation of the parts to the whole found in music, art, and nature, including the Gothic cathedral and compositions performed by its choir, comes to be used in marketing as advertising techniques become more sophisticated. To find such designs used in marketing as a means of attracting and focussing the consumer's attention is to experience the irony of heightening and diminishing effects, both the significance and the trivialization of art in advertising. What Murray refers to as "psychic data" could be the iconography of consumer culture replete with rich associations, leading Murray to comment on the timelessness of commerce.

The sense of layered interiority as cosmological awareness promotes the figuration of universal concepts in terms of self-similarity and self-affinity. The landscape transformed by technology corresponds to the technologically modified human body where the inorganic, in the form of the machine, encroaches upon the organic. Descriptions of space in *Already Dead*, *Gravity's Rainbow*, *Neuromancer*, and *White Noise* represent liminality and bifurcation. The singularity in *Gravity's Rainbow* is the liminal point where the mathematical function switches from plus to minus; in dissipative structures, the singularity is one example of a bifurcation point, the point of maximum entropy at which the system undergoes a transformation and becomes a new form with a new level of organization. The point of encroachment at which technology inflicts a wound upon the landscape or upon the organic body forms another singular point as a site of maximum entropy, and reveals the layered interiority beneath.

Information Consumption:

Misinformation, Feedback, and Consumer Desire

In *White Noise*, *Already Dead*, *Neuromancer*, and *Gravity's Rainbow*, a complex relationship among technology, consumerism, and the media appears in the form of a feedback loop. As the forms of technology proliferate, the mass media use these forms to achieve greater saturation in order to gain control over consumer desire and to create a greater desire for new and more sophisticated technologies which, in turn, leads to a greater proliferation of forms. The capability for greater media saturation results in the conformity of consumer desire and this sameness results in an eroded sense of uniqueness as individuals increasingly resemble each other as consumers of products. In a similar loop, technology produces disease, and consumer desire for cures creates a demand for new technologies to treat technologically induced ailments. Resignation to this spiraling pattern of social entropy and technological proliferation evokes the desire for passive distraction from a sense of powerlessness by means of the consumption of drugs, entertainment, or misinformation.

In this final chapter, I wish to explore the significance of consumerism, the mass media, and informational entropy, and the ways in which these factors combine to form a positive feedback loop of social entropy in technological society. The Tower of Babel myth is a tale of informational entropy in which God creates informational entropy by means of a multiplicity of languages. In effect, the diverse human languages prevent social entropy in the form of sameness and uniformity, but also in the form of a unified consumer culture that strives to produce monolithic technologies. In the novels under consideration,

the increasing uniformity produced by advertising in its need to form target market groups for the consumption of products, or, as in *Gravity's Rainbow*, where governments standardize language in order to facilitate bureaucratic control and where corporate cartels form and erase national boundaries, social entropy is a product of informational systems.

In *White Noise*, information or, more aptly, misinformation appears to achieve the status of a consumer item. Consumers, generally speaking, seem to prefer misinformation to information, a theory supported by the popularity of tabloid journalism depicted by DeLillo; ironically, misinformation seems to be a highly-valued product that consumers are willing to pay to obtain. Similarly, DeLillo explores the relation between the representation and the thing: the behaviour of Willie Mink, an avid consumer of media images, indicates that he confuses the word for the thing, and he ducks when Jack says "low-flying plane." Just as misinformation may be preferred to information, the activities of SIMUVAC suggest that the representation is actually preferred to the thing; hence, the value of the simulation is greater than the actual event. Possibly, in bureaucratic procedures, the representation has replaced the thing, at least as an object of study (see Chapter 3 for a discussion of the representation as the death of the thing).

In a sense, the representation is the death of the thing: SIMUVAC representatives convince the residents of Blacksmith that if they rehearse simulations of disaster thoroughly enough, real disasters will not occur. Three days after a simulated "noxious odour," a real odour occurs:

> A pause, a careful thoughtfulness, seemed to settle on the town. Traffic moved more slowly, drivers were exceedingly polite. There

> was no sign of official action, no jitneys or ambulettes painted in primary colours. People avoided looking at each other directly. An irritating sting in the nostrils, a taste of copper on the tongue. As time passed, the will to do nothing seemed to deepen, to fix itself firmly. There were those who denied they smelled anything at all. It is always that way with odours. There were those who professed not to see the irony of their inaction. (*WN* 270)

The citizens tell themselves that official action would be taken if the situation were an emergency. However, during the airborne toxic event, a SIMUVAC representative openly admits that the government bureaucracy involved considers the genuine disaster to be second rate: "You have to make allowances for the fact that everything we see tonight is real. There's a lot of polishing we still have to do" (139). The interest this state-run operation has in disaster takes an abstract form, the form of a statistical analysis with well-defined categories into which an actual disaster fits only sloppily.

In the interest of bureaucratic control, the predictability of the simulation makes it superior, while the stochasticity of a genuine disaster is viewed as anomalous and flawed. This attitude of bureaucratic statisticians depicted in *White Noise* is the equivalent of the reductive tendency in the Newtonian paradigm to ignore anything that does not fit the prescribed pattern. Because of this attitude, problems like the Cantor Set belonged to "the zoo of mathematical monsters" to which any problem that could not be reduced to a simplistic formula was consigned and then ignored (Peitgen 67). Similarly, Euclidian geometry deals with simplified forms rarely seen in nature. Chaotics,

alternatively, can map a form as complex as a bunch of broccoli, a mountain range, or a fern frond.

Part of the problem presented by the airborne toxic event under study by SIMUVAC statisticians is due to the effects of weather. The shifting of the wind makes evacuation necessary for the inhabitants of Blacksmith. In the 1950s and 1960s, when computers and satellites were developed, attempts were made to predict weather in the belief that weather could be as predictable as the motion of the planets in the solar system if only the important information on initial conditions could be gathered. But sensitive dependence on initial conditions makes this impossible except in the short term; small errors multiply into large-scale inaccuracies over larger time frames (Gleick 21), or, as Jack expresses the concept (in a different context), "small errors grow heads, fictions proliferate" (*White Noise* 82).

During the toxic event, a sense of equivocation between the representation and the thing exists in the form of the revisions of symptoms in news announcements which are mirrored by the symptoms Jack's children experience. Jack and Babette cannot be sure whether the symptoms are the result of the suggestibility of the children, or whether the revisions of announced symptoms follow an expected or discovered progression in actual symptoms. In addition, *déja vu* as a symptom suggests a dramatic increase in simulated effects:

> But what if she hadn't heard the radio, didn't know what *déja vu* was? What if she was developing real symptoms by natural means? Maybe the scientists were right in the first place, with their original announcements, before they revised upward. . . . I found

> myself giving and taking an oral examination based on the kind of quibbling fine-points that had entertained several centuries worth of medieval idlers. (*White Noise* 126)

The indeterminacy of causation results in confusion and uncertainty. Interestingly, Jack, who is exposed to the toxic cloud for two-and-a-half minutes while pumping gas, does not complain of any symptoms. Jack also wonders whether there could be a real and a simulated *deja vu* (see Ch 3).

During the near crash of the airliner, which Jack hears about when he picks up Bee at the airport, revisions take place in the description of the expected disaster. The pilot or co-pilot in the cockpit commits an act of informational excess in announcing that "they will find our bodies in some smoking field, strewn about in the grisly attitudes of death. I love you, Lance" (90). The passengers feel alarmed by receiving too much information, and the lack of editing undermines the credibility of those in positions of authority. Next, the impending event is revised from a crash to a crash-landing. The passengers make "an urgent and force-fed lowing," as if force-fed with misinformation by authoritative systems of dissemination. The event is described as "four miles of prime-time terror," suggesting that, as representations of disaster, disaster movies have a significant relation to real disaster, or that they have somehow replaced it. This possibility is similar to the function of the information that SIMUVAC produces, in being a controlled and presentable representation of an unseemly, chaotic event, an event safely contained in the popular media or in informational systems. If the representation displaces the thing, it means that the event becomes pure information, which could explain why, when Bee learns that Iron City lacks radio and television stations, she remarks, "They went

through all that for nothing?" (92). Her comment implies that without representation in the mass media, an event or a thing has no meaning or importance, as if it had not occurred or did not exist.

In a similar incident, Tommy Roy Foster, the mass murderer with whom Heinrich corresponds, suffers disappointment when his crimes are not mentioned in the media because Iron City has no radio, television, or newspapers. His only regret about his crimes is that he chose a location where media coverage was lacking. The same sense of betrayal is expressed by the man at the evacuation centre who carries a portable television on his shoulder and laments the absence of media, ironically wishing for his privacy to be violated as a finishing touch to the trauma of the toxic spill. In a linguistic feedback parody of the feedback that occurs between violent crime and its media coverage, Jack's conversation with Heinrich regarding Foster takes the form of a linguistic version of video feedback (see Ch 3) in that Jack asks questions based on popular accounts of mass-murderer profiles that allow him to categorize the type of killer, and confirms the expected information that Heinrich supplies:

> "He went up to a roof."
>
> "A rooftop sniper. Did he write in his diary before he went up to the roof? Did he make tapes of his voice, go to the movies, read books about other mass murderers to refresh his memory?"
>
> "Made tapes."
>
> "Made tapes." (44)

Foster has learned how to commit the crime from attending to popular media accounts and assumes that the loop will be completed by media coverage. He

decides that he should have chosen one famous person to assassinate instead of killing a group of unknown individuals, a crime which is no longer a remarkable occurrence that would warrant sending cameras and media personnel to a small town.

According to the popular account of mass murder, past media frenzies have led to an increase of violent crime (as an effect of positive feedback); this process affects media coverage in that only violence on an extreme scale or against someone already subjected to media scrutiny deserves attention. Just as greater and greater natural disasters warrant attention and increasingly spectacular car crashes must be devised for the cinema, increasingly heinous crimes must be devised by individuals whose only hope for distinction is in the media coverage of their crimes. Jack describes a news report about bodies found buried in a back yard; two bodies are found, and more are expected, "perhaps twenty bodies, thirty bodies" (222). When no more bodies are found,

> the sense of failed expectations was total. A sadness and emptiness hung over the scene. A dejection, a sorry gloom. We felt it ourselves, my son and I, quietly watching. It was in the room, seeping into the air from pulsing streams of electrons. The reporter seemed at first merely apologetic. But as he continued to discuss the absence of mass graves, he grew increasingly forlorn, gesturing at the diggers, shaking his head, almost ready to plead with us for sympathy and understanding.
>
> I tried not to feel disappointed. (222-3)

According to this description, it is as if the technology of information is directly responsible for the spiritual impoverishment implied by thrill-seeking at the

expense of victims and their suffering families, because the room in which the viewers sit becomes contaminated by electrons, magnetic waves, and radiation from the television. Viewers are more concerned about the numbers than the victims, hoping to have viewed the greatest atrocity of its kind. This account appears at the end of Chapter 29, followed by Chapter 30 which begins, "In the dark the mind runs on like a devouring machine" (224). The devouring machine referred to must be the trash compactor, because of the misinformation, triviality, and atrocity the mind consumes when exposed to the mass media.

This principle of the augmentation of violent crime accords with the significance of *The Guinness Book of World Records*, in which meaningless activities take on the importance of accomplishments only because they are the most extreme example. Informational record-keeping tends to suppress the qualitative aspects of achievement in favour of the quantitative aspects, so that in mass culture spectators are impressed by uniqueness as defined by numbers rather than by meaning. Recent (1999) issues of *TV Guide* attest to this phenomenon:

> Guinness World Records 1:00 A human regurgitator attempts to bring up 10 quarters in a specific order; a man tries to ride the world's smallest unicycle. (Issue 1173)
>
> Guinness World Records 1:00 A man tries to remain on fire for over two minutes. (Issue 1174)

These examples indicate that twentieth-century statistical methods have been applied to the format of the nineteenth-century freak show. The individual's need to distinguish him/herself as unique, however bizarre the attempt must be, has become an accepted and expected convention.

Jack realises that he has something in common with Tommy Roy Foster, Heinrich's correspondent: Tommy Roy felt that time was running out on him. Jack is afraid of time and also fears that he is bland and indistinct, but he is comforted by his association with Hitler:

> "He now knows he won't go down in history."
>
> "Neither will I."
>
> "But you've got Hitler."
>
> "Yes, I have, haven't I?" (45)

Jack attains a vicarious importance through his association with an historically confirmed mass murderer; in addition, he has the success of publications, awards, and citations in his academic career. When Jack shoots Willie Mink, media attention is not the motive, but the idea that time is running out certainly influences him.

Media attention represents success in these accounts, but also a kind of immortality on a cultural or informational level. To be represented in the media seems to signify not only fame, but also a permanent historical record. With the proliferation of informational media accounts, however, the overwhelming mass of information results in forgetfulness and trivialization. Also, the encroachment of informational technologies upon organic life is considered by some to result in spiritual impoverishment. The transformation into data, as in *Neuromancer*, removes some human essence, and the subject of representation loses its authenticity and becomes a simulation. When Babette appears unexpectedly on the family television screen, Jack wonders,

> Was she dead, missing, disembodied? Was this her spirit, her secret self, some two-dimensional facsimile released by the power

> of technology, set free to glide through wavebands, through energy levels, pausing to say good-bye to us from the fluorescent screen? . . . a walker in the mists of the dead. If she was not dead, was I? A two-syllable infantile cry, *ba-ba*, issued from the deeps of my soul. (104)

Babette, transformed into pixels, evokes a superstitious dread in Jack, as if it were her ghost bidding farewell. He also remarks, "We were being shot through with Babette," his comment on the power of the media image to colonize (105); in a similar description of colonization by the media in *Americana*, David Bell comments, "Within the conflux of shadow and time, there was room for all of us and I knew I must extend myself until the molecules parted and I was spliced into the image" (13).

In a sense, the family consumes or incorporates Babette in image form. In the context of Mr. Gray, Jack has thought of Babette as "the eternal waiting nude," evidence of Jack's tendency to objectify her, but an electronic image produces a more entropic effect than a work of art, a more threatening encroachment of the inanimate upon the animate. Jack feels alienated by the power of technology to appropriate Babette's image, rendering her organically inaccessible, when he has considered her to be "[his] life force," (199) "a full-souled woman, a lover of daylight and dense life" (5). The idea that repeated representation erodes the soul creates unease in Jack; Babette's image is transmitted into many televisions, each one stealing a fraction of her "secret self." Wilder attempts to touch Babette through the television screen, and cries when her image disappears. Jack's reaction differs less than one might expect, indicating that Jack's understanding of technology fails to reassure him. During

this event, Murray takes notes, and Jack notices him watching and "smiling in his sneaky way," as if Murray were the only one Babette had informed in advance about her television appearance (105).

Murray's study of the Gladney family convinces him that "the family is the cradle of the world's misinformation," because humanity requires the consumption of misinformation for its survival (82). His view implies that facts and information technology are agents of death, and, conversely, that ignorance and consumption keep the family alive. David Bell attributes his success at the network where he is employed to his early understanding of the uses of misinformation. He rises to an executive position after noticing that, although network executives produce work, the secretaries wield power because they know how to use gossip in order to affect the success or failure of others. While chatting with other men's secretaries, Bell starts rumours that other executives, his competitors, will be fired. A short time later, Bell learns from his secretary that his boss is firing every executive but him.

Bell recognizes the relation between the representation and the thing as a kind of feedback system with endless repetitions and remarks to himself:

> There were times when I thought all of us at the network existed only on videotape. Our words and actions seemed to have a disturbingly elapsed quality. We had said and done all these things before and they had been frozen for a time, rolled up in little laboratory trays to await broadcast and rebroadcast when the proper time-slots became available. And there was the feeling that somebody's deadly pinky might nudge a button and we would all be erased forever. . . . We seemed to be no more than electronic

signals and we moved through time and space with the stutter and shadowed insanity of a TV commercial. (*Americana* 24)

Bell feels that the representation has replaced reality; individuals have become pure information, already dead or "elapsed." In this case, it is also as if saying it makes it so because the representation replaces reality: it does not matter whether the gossip is true or not, because the effects of the gossip occur even if it is false. Bell does not always create fictions about his co-workers and competitors, but he opportunistically adds to rumours that he hears or slants the existing interpretation of information; for example, Bell insinuates that the reason why another executive sleeps in his office a few nights per week may not be because he works unusually hard, but because he has affairs. When his boss later asks him about a rumour that the other executive is homosexual, Bell acts as if he does not wish to comment, but when pressed for information, he invents a ludicrous fiction about graffiti in a men's washroom on another floor of the network building. The import of the graffiti confirms the rumour. Later, the other executive is fired.

As an aficionado of misinformation, Murray Suskind has an inner life that is colonized by media messages. The Heimlich manoeuver was developed in response to intense media coverage of a popular singer's death (an "ample woman" who choked on a ham sandwich). Murray's fetish for the Heimlich manoeuver bears a relationship to consumption: his fantasy is to "snatch life out of the jaws of death," so to speak, by saving a woman's life while she eats and chokes on her food:

"You don't really expect her to lodge a chunk of food in her windpipe."

> He looked at me, half startled. "What? No, no, that won't be necessary. As long as she makes gagging and choking sounds. As long as she sighs deeply when I jolt the pelvis. As long as she collapses helplessly backward into my life-saving embrace." (153)

In this passage, again, the simulation replaces the actual event, and the notion of a real occurrence rather than a fantasy or simulation startles Murray. Media messages and consumption are the elements within which Murray lives and his objects of study as a lecturer in the popular culture department; moreover, Jack notes that he encounters Murray at the supermarket, a prime site for consumption, just as often as he does on campus. While talking to Babette in the supermarket, Murray "sidles around her, appearing to smell her hair" (35). Babette turns "in an effort to find him" as he thanks her for the dinner she cooked, "standing directly behind her," and tells her that he likes to cook also. This incident and the way Murray positions himself behind Babette while talking about the meal they had together provide evidence that Murray has a fantasy about performing the Heimlich manoeuver on Babette.

When Babette and Jack go to Murray's room for dinner, Murray blatantly propositions Babette:

> "Don't think I wouldn't appreciate a dramatic visit between two and three in the morning," he told her, "from an intelligent woman in spike heels and a slit skirt, with high-impact accessories." (52)

Predictably, his proposition sounds derived from advertising in its reference to "high-impact accessories," as though his fantasy had been instilled by the media, "shot through," perhaps, by electrons and pixels, or by the glossy photographic images of popular magazines. Norman Fairclough, linguist and

social critic, refers to "the 'colonizing' tendencies of advertising discourse"; evidence of such tendencies can be found in Murray's desire for a woman bedecked in trendy fashions and in the advertising rhetoric in which he formulates his inner life (199). In *Americana*, David Bell describes the "montage of speed, guns, torture, rape, orgy and consumer packaging which constitutes the vision of sex in America" (33); for Murray, the consumer packaging of a woman in "high-impact accessories," high heels and a slit skirt, is more important than any fantasy of inner worth, uniqueness, or individuality.

Murray has specified that a woman's mind fascinates him; however, the conversation he has with Babette in the supermarket in which he describes his theory of consumerism and Tibetan mysticism seems one-sided; Babette only smiles. In his proposition to her, it appears that the surface or style of a woman is more important than intellectual exchange. Jack, who sits between them during the conversation in Murray's room, fails to remark upon the proposition. Significantly, Jack is adept at "sealing off the world" for his survival (82). He does, however, notice that Murray smiles in "a half sneaky way," (51) earlier noted as "a look that gives equal credence to disaster and lecherous success" (20) in "his program of straightforward lust" (21).

Murray's fantasy about Babette suggests that the ability of the media to instill fantasies and desires in the consumer derives from the power of the image, whether visual or aural, which has virus-like properties. What Richard Dawkins calls a "meme," an informational virus (see Ch 1), Murray refers to as a chant or a mantra: "*Coke is it. Coke is it. Coke is it*" (51). Also, when Murray takes Jack to view the most-photographed barn in America, the signs along the highway that announce the location of the barn are virus-like. Murray

comments that no one sees the barn, having seen the signs first: "We're not here to capture an image, we're here to maintain one" (12). He suggests that "an accumulation of nameless energies" is created by the focus of technological image-taking in the form of cameras, as if the technology of image-taking colonizes the object in order to replace it with a representation.

Just as Murray describes shopping as a form of spiritual rejuvenation, he views tourism as a kind of religious pilgrimage. When he comments that the tourists visiting the barn "are taking pictures of taking pictures," he implies that the original is lost in the process of copying in mass production, just as signs refer to each other in hyperreality. (Baudrillard remarks that "by dint of being more real than the real itself, reality is destroyed" by the hyperreal [see Ch 2].) Murray's comment resembles Baudrillard's concept of the consumption of consumption; consumption becomes an end in itself. The gap between the act of consumption and the fantasy of consumption is the space of consumer desire, just as the desire of the serial killer remains incomplete and insatiable, requiring repeated acts of consumption.

Charles Levin, psychoanalist and social critic, describes hyperreality as "reality conceived without otherness. In a sense, it abolishes the space within which the 'scene' of reality can be represented" (274). In the case of the barn, the space within which the real barn exists has been abolished and replaced by the media representation of "barn." No historical significance is cited in describing the barn; the only significant fact is that it is the "most photographed" barn and that it exists in America, which could also be described as an abolished space taken over by media technology and transformed into a tourist

attraction. The significant feature of the barn is that it is consumed--as an object for consumption.

The above passage describes the consumption of the landscape by the media through colonization. DeLillo's descriptions of people eating occur regularly in the narrative and refer to other forms of consumption. Heinrich's technique of consumption represents the landscape:

> We watched him use his spoon to mold the mashed potatoes on his plate into the shape of a volcanic mountain. He poured gravy ever so carefully into the opening at the top. . . . It occurred to me that eating is the only form of professionalism most people ever attain. . . . A tension seemed to be building around the question of whether he could finish the gravy before the potatoes collapsed. (175)

A related allusion to the landscape occurs later in this conversation when someone asks, "Who invented the mechanical reaper and how did it change the face of American agriculture?" (176). The transformation of landscape from frontier to food source was accomplished with the aid of technologies of transportation and agriculture, and provides an example of the encroachment of the machinic upon the organic.

During the above passage, a conversation alluding to the consumption of statistics progresses between Jack and Heinrich, which is witnessed by other family members. Heinrich asserts that technological devices have the ability to kill people with their radiation; for example, statistics indicate that the presence of high-tension wires across the landscape correlates with high rates of suicide and cancer. Jack counters that the compilation of frightening statistics has

become "an industry in itself" (175). Babette later asserts that a feedback loop occurs between disease-causing technologies and new technologies to cure disease: "The sunscreen, the marketing, the fear, the disease. You can't have one without the other" (264). Like Pynchon's assertion that technology feeds on humans through the medium of war, here the same relation occurs through disease, with statistics feeding consumer desire for curative products.

Consumption and statistics are paired, once again, and associated with death when Jack takes Mercator and Heinrich out for dinner. Mercator considers himself a statistical person in his quest for fame in the *Guinness Book of World Records* and in his potential death from snake venom. "There are more people dead today than in the rest of world history put together. What's one extra?" (266); he trivializes himself by viewing himself as a number in the mass of data, and by thinking that his life is insignificant unless he can break a record. Mercator has begun to refer to himself in the third person, as if he were a statistic or a media personality. Jack comments that "he was creating an imperial self out of some tabloid aspiration," a social construction generated from media images and bureaucratic norms (268).

As Jack watches Mercator eat, he notes the machine-like compulsive consumption of food in the body-builder:

> He inhaled food according to aerodynamic principles. Pressure differences, intake velocities. He went at it silently and purposefully, loading up, centering himself, appearing to grow more self-important with each clump of starch that slid over his tongue. (265)

Mercator constructs himself through consumption, and in doing so resembles a machine. Jack notes "the mechanical fork" shoveling the food into the teenager's mouth like coal into a steam engine. Jack wonders whether Mercator transcends his own data in this process of rigorous consumption and statistical achievement (with the setting of each new record, the numbers approach closer to the singularity, the transcendental point) through "some angelic scan," which implicitly relates Jack's fascination with Mercator to his own impending death and his fear of being nothing more than the sum total of his data.

The setting for this conversation has been the site of other acts of consumption, such as Jack's spending spree and the family's fast-food outing. Jack describes it as "the commercial strip in the no man's land beyond the town boundary," a form of frontier in which foraging, hunting (Jack notes the "blood-red booth"), and gathering can be performed. He describes "the never-ending neon," not unlike the "neon forest" of Gibson's consumers' turf, and suggesting a limitless frontier for consumption. The restaurant typifies a style found all over North America which emulates the Mediterranean style, "Vincent's Casa Mario, a blockhouse structure with slit windows that seemed part of some coastal defense system," emphasizing the frontier nature of the area in Jack's schema. In *White Noise*, the frontiers of technology, rather than an outer-space frontier, require constant input from consumers in the form of need and desire, and the consumer her/himself is the territory to be colonized--by technology.

The endless cycles of consumption appear to take the form of a dissipative structure in Murray's theory of supermarket spirituality. He compares the supermarket to death in Tibetan mysticism:

> "Tibetans believe there is a transitional state between death and rebirth. Death is a waiting period, basically. Soon a fresh womb will receive the soul. In the meantime the soul restores to itself some of the divinity lost at birth. . . . That's what I think of whenever I come in here. This place recharges us spiritually, it prepares us, it's a gateway or pathway. Look how bright. It's full of psychic data." (37)

The cycle of consumption includes the regeneration of the organic, negentropic individual. In Murray's example, the supermarket represents the leap to a new level of organization, perhaps a bifurcation point as product choices are made by the consumer. The point of maximum entropy that precedes bifurcation corresponds to the discarding of waste in the form of packaging and decayed products. Appropriately, this point of maximum entropy is enhanced by a machine, the trash compactor. The supermarket stands for the space between death and rebirth in the cycle of consumption, which Murray describes as a "transitional state." Murray asserts that "Here we don't die, we shop. But the difference is less marked than you think," a statement that corresponds to Jack's musings about purchasing "existential credit" during his spending spree at the mall. Similarly, Jack feels confirmed on a spiritual level when he visits his ATM machine: "The system had blessed my life" Jack thinks, in a parody of the confessional; "bless me Father for I have sinned" . . . with my credit card (46). As in the supermarket, "the letters and numbers" of informational bureaucratic control, the product codes and labels and the holographic scanner, have a mysterious quality that evokes a sense of religious awe in the consumer.

Murray's ironic search for spirituality in consumerism stands in contrast to the accepted view of the increasing loss of spirituality in an acceleratingly consumeristic society. DeLillo undermines the cinematic image of Christmas found in movies made in the 1940s, in which the bustle of Christmas shopping in Manhattan has a warm, nostalgic, almost nineteenth-century ambiance. The sentence structure in the following passage has a blunt, choppy inelegance intended to suppress warm feelings:

> Then we came to the end of another dull and lurid year. Lights were strung across the front of every shop. Men selling chestnuts wheeled their smoky carts. In the evenings the crowds were immense and traffic built to a tidal roar. The santas of Fifth Avenue rang their little bells with an odd sad delicacy, as if sprinkling salt on some brutally spoiled piece of meat. Music came from all the stores in jingles, chants and hosannas, and from the Salvation Army bands came the martial trumpet lament of ancient Christian legions. It was a strange sound to hear in that time and place, the smack of cymbals and high-collared drums, a suggestion that children were being scolded for a bottomless sin, and it seemed to annoy people. But the girls were lovely and undismayed, shopping in every mad store, striding through those magnetic twilights like drum majorettes, tall and pink, bright packages cradled to their tender breasts. (*Americana* 3)

The crowds and the traffic dispel any illusion about the historical period, and with it, nostalgia; in the impersonal crowds, no one is overheard wishing anyone a "Merry Christmas." The "odd sad delicacy" of the santas seems to

suggest regret over the loss of spirituality at the Christmas season, and the spoiled meat of consumerism alludes to social entropy or waste in consumption, perhaps even to the many unwanted gifts that go unused. The sweetness of traditional Christmases, traditionally emblematized by sugarplums, is replaced by saltiness and decay. Music in the form of jingles replaces traditional Christmas carols. Consumers find the Salvation Army band annoying, with its suggestion of giving to the poor or caring for the underprivileged as modeled in the carol "Good King Wenceslaus." The only cheerful note is in the description of the gleeful spending sprees of young women who do not notice any loss of spirituality because they are totally consumed by the desire for products which they clutch to their breasts like treasured offspring.

The feedback loops of consumption in *White Noise* represent an inescapable spiral of positive feedback among technology, media images, and consumption. Jack's income bracket is a site of identity that he feels should protect him from disaster and allow him to achieve security as a consumer. Jack attempts to attain a singular point as a statistical person by making more money and buying more products for his family, and by becoming physically larger; in these ways his activities resemble those of Mercator, who attempts to achieve a world's record in defeating death.

Similarly, in *Already Dead*, Clarence Meadows' description of consumers is influenced by the use of informational systems in retail stores. He drives past a Safeway supermarket and notices that

> Citizens of the Empire stopped and went, blinded slaves, beautiful slaves, moving down the laser lines tuned to every electronic

> thing. With their tattooed pensions. Their chains and memberships. . . . He had in him the power to lengthen his touch right through the walls and into their minds where they lay propped up with their TVs turning them to ghosts. Whatever else he himself might be accused of, at least he'd managed to stay out of their world. He couldn't truthfully be demonstrated even to be a citizen of this planet. (322)

Clarence considers the shoppers with their social security numbers to be dehumanized and itemized like the products and their codes scanned by the laser device at the checkout counter, enslaved by the whole system of control which constitutes consumer society. Clarence notes that the consumers voluntarily wear chains, as if they were "slaves" to fashion, a prime example of needless consumption and planned obsolescence. As a criminal, Clarence does not pay taxes; he does not own property; he describes himself as "mostly unauthorized," by which he means not normalized by bureaucracy to the same degree as others (although he must have a driver's licence). Clarence is aware of the colonizing effects of television, believing that it turns people into ghosts.

Clarence manages to resist the cycle of mass consumption, at least more than most, by "living outside the need of--the great slavers: money, women, euphoria" (187). He considers religion to fall into the last category, as an opiate. He asks Carrie where she learned religion, and she replies, "From the road. From the radio. TV sometimes" (184). As a migrant farm worker, she drives up and down the coast looking for crops to pick and listening to media evangelists on programs broadcast by radio stations. She finds a church for the lost, "professional poachers," "cocaine demon[s]," and takes part in an orgiastic

release of "gales of misery"; this strikes Clarence as "the dense stifling vapours of their intimacy" which seems to take the place of the euphoria-producing sins that they have given up and that offers a more traditional form of community than belonging to a target market group can provide (323). Clarence, however, feels propelled out of the church by his need for independence, finding the church to be another spectacle of consumption, not unlike the supermarket or the television screen.

Frank is a consumer of illegal substances and has not been able to overcome his addiction. Just before his accident on the highway in front of Yvonne's house, Frank puts on the crucifix of Carla Frizelli, hoping that it will protect him from the demons that have pursued him since his involvement with Yvonne. The crucifix seems to have the opposite effect; he hears a demonic voice calling his name. Frank visits his neighbour, hoping that she will have painkillers, but the old woman gets her morphine through an intravenous and a bolus, meaning that she is "plugged in," like her television. Frank finds her lying in front of her television with her remote control and her intravenous. She presses a button on her remote control "with great authority," as if under an illusion of control regarding the media onslaught, and then presses the button on her drug-dispensing intravenous contraption (304). The spectacle of the television, which allows the passive consumption of images, corresponds to Clarence's assessment of religion as an opiate. The television slowly turns the old woman into a ghost as she lies in front of it, being colonized by the media image and assimilated into a target market group determined by the bureaucracy of advertising executives, alternating the consumption of media with the consumption of morphine.

The passage which follows the description of the elderly woman portrays Harry Lally, the drug dealer, who also holds a remote control for his television. He goes to his medicine cabinet looking for a pain killer for his headache, and views himself in the medicine cabinet's mirror: "the mirror broadcasts a rehabilitated TV preacher swing-band convict idol, back after prison, with a headache" (304). Clarence Meadows has described Lally as an incompetent who will, inevitably, be convicted for trafficking in drugs, completing a feedback loop because he has just returned from prison. In front of the television, Lally views a drug dealer known as "Joe Hopeless" who has been arrested for murdering another drug dealer. In this passage, the television mirrors what is occurring in real life; Harry Lally is the man who hired the hit men to kill Nelson Fairchild. Instead of an ironic reversal of the real and the unreal in media simulations, the media signify a mirror image which represents a palindrome of real life in endless replications of sameness. Bar patrons viewing the same broadcast confuse the killer with his victim; similarly, a cycle between victim and victimizer, or predator and prey, occurs in Nelson Fairchild's successive lifetimes: Nelson will be killed in this lifetime because he murdered in the last.

Media representations and death are paired in Nelson's description of the movie theatre. A woman suffers a heart attack in the lobby; Nelson believes her to be dead, but paramedics revive her with a "defibrillating machine" (145). A man enters the theatre carrying a shoe box, and the other patrons assume the box contains a bomb. A mass exodus ensues, with "mute, terrorized people pouring out of the place" (71). The movie patrons each assume that any stranger in the theatre is capable of mass murder. An equivocation between the representation and the reality of the thing appears in this description; Nelson

describes the actors on the screen continuing their conversation, robbed of illusion by the real drama occurring in the theatre; but, minutes later, the viewers are once again engrossed in the movie, "completely consumed again by the drama, which wasn't a very compelling one to begin with anyway. . . . Afterwards I recognized a famous man, a television star, standing there in the lobby with a red and orange sack of popcorn in his hand" (71). The representation of actors is replaced by a real actor in the theatre, but probably the actors on the screen seem more real because the viewers are acculturated by cinematic conventions. As in Baudrillard's comment (above) that "by dint of being more real than the real itself, reality is destroyed" (by Hollywood realism), the movie has the effect of making reality seem dull and lifeless by comparison. In another representative loop, Nelson describes the advertisements for the movies and the exaggerated praise of the critics, and how he feels "cheated later in the dark by all the fakery" (144).

Nelson's impression of the film industry corresponds to other descriptions of industries that mass-produce consumer items, such as weapons and vehicles. Nelson is not sure whether the theatre is a "fourplex" or a "fiveplex," but the description evokes a sense of proliferation, of several movies being shown at the same time, not just in every city, but in every mall that contains a theatre complex, all over North America. This proliferation of media images as products for consumption hearkens to the description of mass-produced weapons, particularly Nelson's Magnum, suggesting a proliferation of images, products, and violence (see Ch 3). Any Hollywood movie will be shown simultaneously all over the country, evidence that every movie is reproduced in large quantities so that there are multiple copies (a similar phenomenon of social

entropy to the hotel chain described in *Americana* [see Ch 4]). In addition, movies are the largest export item produced in the United States, enhancing the numbers and the colonizing effects of the medium. As Nelson reads the two-page advertisements in the newspaper, "the impression dawned that we'd entered a dazzling era--this week, this single week, would glow in racial memory--and I shared it all, was in fact dazzled" (144). The problem of a loss of quality in mass quantity is veiled by the hyperbolical claims and ever increasing media saturation of advertising for movies in a positive feedback loop of increasing profits, actors' salaries, special effects, and viewer acculturation.

Nelson refers to the feedback effects upon human behaviour in citing the example of his mother, who becomes bored with herself and "often pretends to be someone out of a book, copping monologues right out of Jane Austen, Dickens, Jack London . . . like me, a reader and a drinker" (145). Nelson wonders whether his mother's persona at her job is more or less real than the one he sees. Similarly, the movie-going subject models its behaviour on that of the actors on the screen, particularly in private acts, for the viewing of which movies offer a unique, if simulated, access. Increasingly, real life imitates media representations to the point at which the representation replaces the thing and becomes its death.

Related to the principle of the mass production of movies, weapons, and vehicles is that of planned obsolescence, first devised by General Motors in styling its cars. Although last-year's model is devalued, a rare old model becomes a collector's item, as in the case of Nelson's Magnum. Clarence's practice of refurbishing old cars is somewhat subversive of the scheme to create desire for this year's model. When Clarence tries to obtain a used

exhaust manifold for the old Mercedes he purchased, he meets with resistance from the parts retailer, who tries to convince him to buy a new manifold, a way of recovering lost sales by putting new parts in old cars. Clarence does not see the point of putting a new manifold in an old vehicle and does not want to pay the price, while Vinelli, the dealer, views Clarence's recycling of parts as counterproductive to mass production and to his profits. Eventually, "Vinelli manipulated the buttons, and Vinelli's machine communicated to other machines its interest in Mercedes 190SL exhaust manifolds while Clarence left the place" (333). Through information technology, the dealer can locate spare parts for machines with product code numbers, just as a social insurance number facilitates the ability to locate a human being. The informational system acquires product parts and consumers as part of the system of consumption and waste.

The recycling of machinery appears in the art of Nelson's wife, Winona. Winona creates sculptures with the aid of an arc welder, weathered tree limbs, and abandoned farm machinery. Van Ness views her productions: "All around the pasture grandly proportioned assemblages of gray timber and junk farming equipment scattered their shadows. He took their intent to be artistic" (68). She combines the organic and the machinic in her art, recycling dead trees and the implements of their destruction, and displays them at the edge of the rain forest where the convergence of the organic and the machinic takes place. Her work stands as a monument to the colonization of nature by technology.

In the future world of *Neuromancer*, nature has been fully colonized by technology; one example is the production of cloned organs, including muscles and skin, which are grown in vats. Also, "genetic materials and hormones

trickled down to Ninsei along an intricate ladder of fronts and blinds" (*Neuromancer* 11); the "ladder" described must be the double helix of DNA strands, because Gibson uses an evolutionary metaphor to describe consumerism. The black market of Ninsei is peopled with "a dozen distinct species of hustler" who prey upon sailors visiting the port (10). Gibson describes the resurfacing of old trends as "a kind of ghostly teenage DNA at work in the Sprawl, something that carried the coded precepts of various short-lived subcults and replicated them at odd intervals" (58). In the same sort of recycling feedback loop, leading edge trends come to be absorbed into the centre and become conservative signs; for example, Armitage wears a Special Forces earring. In the 1980s, the tattoo is the form the Special Forces insignia takes in popular movies like the *Lethal Weapon* series. Later, the earring, which was a new trend for men in the early '80s, was incorporated by conservative organizations such as the military.

The DNA metaphor for cultural trends can also indicate Dawkins' theory of the meme as informational virus, coded yet organically patterned. The "coded precepts" "replicate" like viruses, going out of fashion and then reappearing, like a disease organism squelched by the immune system only to re-establish itself when the immune system is weakened by fatigue. Gibson's comment on the circular processes of trends in mass culture can be compared to looping formations found in chaology, such as the Belousov-Zhabotinskii reaction, which appears to be a form of strange attractor. The system is stochastic but remains within certain limits: "characterized by the spontaneous formation of rotating concentric circles, scrolls, and spirals, the reaction looks for all the world like an evolving life-form" (Peitgen 109). Gibson calls attention

to the universality of informational processes in referring to cultural processes in terms of biological processes. Similarly, Continuity, an AI, writes a narrative with a continuous looping structure that never exactly repeats itself, like a strange attractor.

Gibson's futuristic world takes the form of an information society in which goods and services are no longer the most important commodities. Case's first job involves the theft of information. When he takes some for himself, his employers do not hesitate to maim him permanently, but Case fully expects to be killed when caught. The value of stolen information is similar to that of illegal drugs, in which commodity Case later has to deal in order to make a living. He is still a thief, but without his cyberdeck skills, he has lost the privilege of elitism which came from dealing in the most prized commodity.

In *Count Zero*, a later addition to the cyberspace trilogy, the "biosoft" has become the leading-edge commodity. The importance of biological software shows a progression toward the merging of the organic and the cybernetic in the new technology that allows the programming of biological organisms, a reversal, in a sense, of the spontaneous self-awareness of AIs that seems to develop in cyberspace. The biosoft is an organic computer chip that can be implanted in the brain in order to enhance its capabilities. The iterative convergence of the organic and the machinic also appears in commodities, such as airplanes:

> The plane had gone to ground near the sound of running water. . . . The plane was smart, smart as any dog, with hard-wired instincts of concealment. He felt it sway on its landing gear, somewhere in the sick night, and creep forward, branches brushing and scraping

> against the dark canopy. The plane crept into deep green shadow and sank down on its knees, its airframe whining and creaking as it flattened itself, belly down, into loam and granite like a manta ray into sand. The mimetic polycarbon coating its wings and fuselage mottled and darkened, taking on the colours and patterns of moon-dappled stone and forest soil. (*Count Zero* 125)

The plane is programmed to have the survival instincts of an animal, while, conversely, a scientist's daughter is programmed with the use of biological software to access cyberspace without the benefit of a hardware interface (like Case's cyberspace deck). The biological software implanted in her brain gives the girl characteristics of the computer. As in *Already Dead*, this convergence has uncanny overtones, because the girl begins to exhibit signs of demonic possession as artificial intelligences in cyberspace begin to speak through her.

The scientist's daughter, Angie, begins her life as an experimental subject and later becomes a media personality who replaces Tally Isham as a simstim star (see Ch 3). Her biological implants give her special abilities in this arena. However, in both instances, her value as a unique commodity results in her exploitation. Her employer keeps her under constant surveillance ostensibly to protect her from her fans, but, more importantly, to protect corporate interests. Her most private moments are carefully observed by security personnel and psychologists. As a simstim personality, her sensorium is recorded for the enjoyment of others, who pay for the privilege of experiencing her sensations. The previous top personality was known for her pleasurable sense of relaxation:

> Now Marly found herself locked into Tally's tanned, lithe, tremendously *comfortable* sensorium. Tally Isham glowed, breathed deeply and easily, her elegant bones riding in the embrace of a musculature that seemed never to have known tension. Accessing her stim recordings was like falling into a bath of perfect health, feeling the spring in the star's high arches and the jut of her breasts against the silky white Egyptian cotton of her simple blouse. (*Count Zero* 173)

Simstim, as a new form of media, provides one example of the ways in which new technologies can commodify the human body and redefine the meaning of work or production. In some respects, the use of simstim tapes could be justified as therapeutic; however, in *Count Zero*, it appears as another opiate, like any addictive substance. Bobby Newmark grows up in a slum with a mother who comes home from work every night and spends her evenings using simstim tapes, an activity that makes her less accessible to her child than television ever would because simstim, as a type of virtual reality, is all absorbing.

In *Mona Lisa Overdrive*, Mona Lisa is a young woman who bears a resemblance to Angie, the leading simstim star of the time. She undergoes plastic surgery to become more like her idol. Commonly, individuals have elective surgery in order to conform to the current style of bland attractiveness, just as in *Americana*, David Bell's friend, Warren Beasley, describes Bell's style of handsomeness as being like that of a number of film actors who are "known for their interchangeability" (93). These examples demonstrate how the popular media contribute to social entropy in contributing to sameness in consumer

desire. Media technology allows for mass saturation and creates desire for products and technologies. Technology, media, and consumption form a positive feedback loop that leads to increasing levels of social entropy.

Perhaps ironically, the increasing scarcity in the twenty-first century of many products which were valued in the twentieth century contributes to the appeal of simstim. For many, the only opportunity to experience the taste of Kobe beef or the finest wines is through a recording of a simstim star's dining experience. In the appropriately named "Le Restaurant Vingtième Siècle," Molly explains to Case that the steak he is abusing with his knife and fork was not grown in a vat, like the muscle grafts available in Ninsei, but was grown in the old-fashioned way, on a whole animal that took years to reach full-flavoured maturity. Case is accustomed to various forms of basic sustenance made from pressed krill, which seems to be the only protein source available in large enough quantities to support the burgeoning human population. Krill patties have taken the place of the hamburger in fast-food establishments, implying that the land required to raise beef has been urbanized.

In *The Consumer Society*, Baudrillard makes observations that have become common knowledge and which are relevant both to the issues of scarcity and of waste. He asserts that affluence in consumer society has meaning only in the context of "wastage" (44). The film star has the significance of a "great wastrel," a hero "in an epic register," like the royalty of previous centuries. The car crash achieves emblematic stature as a wasteful spectacle, and James Dean is the prime example of the wastrel who dies in a spectacular squandering of life, machinery, and speed. Baudrillard suggests that "the use of objects leads only to their *dwindling disappearance*. The value

created is much more intense in *violent loss*" (47). In this context, the spectacle of Jimi Hendrix burning his Stratocaster at the end of every performance makes the mass-produced musical instrument more desirable, even as it stands as a burnt sacrifice which requires the best object obtainable, like an offering to the gods of consumerism.

In contrast to a society in which consumer goods, produced in an industrial economy, have exchange value, Pynchon predicts an information economy in which information becomes "the only real medium of exchange" (*Gravity's Rainbow* 258). Slothrop's quest is for information and, not unlike Meadows, Semyavin cites the importance of "drugs, sex, luxury items," which he claims were the important consumer items "before the first war." Slothrop complains of the physical arduousness of seeking information, and Semyavin responds that "It'll get easier. Someday it'll all be done by machine. Information machines. You are the wave of the future" (258). His comment implies that Slothrop is a crude information machine; Slothrop has noticed that reading rocket manuals provides physical stimulation, which supports the assertion that Slothrop is part machine, because his prosthetic responds to the numbers in equations. The equations in the rocket manuals are designed to control the movement of the rocket, just as individuals in society are controlled through the conditioning of their sex drive. This point is implied through the connection between the Imipolex-G used in the rocket's guidance system and in Slothrop's penis, in the fact that Slothrop can predict rocket strikes.

In *Gravity's Rainbow*, a chemical cartel controls the flow of desirable consumer items, including drugs. Pynchon addresses the issue of opiates in the context of systems of control. Tchitcherine has metal implants in his body

as a result of war wounds, and must deal with pain from his injuries; this problem makes him prone to addiction and substance abuse. Wimpe, who works for a drug company, explains the relationship between pain and addiction, by stating that the more a drug has the capacity to treat pain, the more addictive it turns out to be:

> "There is nearly complete parallelism between analgesia and addiction. The more pain it takes away, the more we desire it. . . . We know how to produce real pain. . . . machines in the factories, industrial accidents, automobiles built to be unsafe, poisons in food, water, and even air--these are quantities tied directly to the economy." (348)

Pynchon explicitly describes a relationship between technology and the need for opiates, or as Meadows calls it, euphoria. Wimpe relates that a synthetic version of morphine, demerol, had already been developed, but it too produced addiction. Wimpe also explains the relation between pain and profit in the exploitation of human suffering, "a direct conversion between pain and gold," recognized by the drug cartel for which he works. This passage describes the feedback loop between technology as a cause and as a cure for human suffering. Wimpe makes the sinister implication that the cause of suffering is deliberate and profitable when he describes "automobiles built to be unsafe," among other things.

The chemical cartel possesses multiple links to a vast number of products and exerts strong control over the economy, not just in Germany, but in Britain and in North America as well. The significance of the cartel predicts the diminution of governmental control, illustrated in *Neuromancer* and even

more elaborately in *Snow Crash*, and the concomitant rise of corporate power, because the cartel crosses national boundaries even as it profits from the war. Neither nationalism nor ethics can explain the war in terms of the multinational corporation which stands to profit whichever side wins. The widespread presence of the chemical cartel is expressed in terms of social systems as chemical components. In *Gravity's Rainbow*, universal terms represent relationships between complex variables on a number of levels. Crowds appear as a flow of particles, and individuals are molecules that may have unattached bonds, suggesting that in human relationships, affinity might correspond to positive and negative electrical charges. Language is compared to the flow of bonded molecules:

> How alphabetic is the nature of molecules. . . . how they are taken out from the coarse flow--shaped, cleaned, rectified, just as you once redeemed your letters from the lawless, the mortal streaming of human speech. . . . These are our letters, our words: they too can be modulated, broken, recoupled, redefined, co-polymerized one to the other in worldwide chains that will surface now and then over long molecular silences, like the seen parts of a tapestry. (*Gravity's Rainbow* 355)

The manipulation of language in the interest of standardization and political/corporate control corresponds to the synthesization and routinization of colour in the dye industry, evident in the reference to a tapestry. In *Language and Power*, Fairclough explains the connection between capitalism and the standardization of language and how this standardization and colonization progresses during "the period of transition from feudalism to capitalism" (57).

As an example of social entropy, the standardization of language acts as another force in the elimination of uniqueness. As separate dialects are eliminated, individuals themselves are colonized and standardized in order to function more efficiently as cogs in the machine of production, and to form a more accessible, manipulable target market for consumer goods.

The above passage appears during Tchitcherine's involvement in language disputes in central Asia, and the analogy with the tapestry hearkens to Barth's comparison of fractal geometry and the Arabesque (Ch 1). The concept of flow and the visible surfacing of forms like eddies in water present to mind the iterations of language as analogous to fractal iterations taking the form of a Mandelbrot set:

> The complexity of the Mandelbrot set is in an altogether different class compared to that of Julia sets. On the one hand, the Mandelbrot set has a solid interior without any structure, and on the other hand it is bordered by a very complex boundary with an infinity of different shapes. (Peitgen 855)

One factor of comparison is the equivocal nature of the blank interior and the light exterior that resembles Pynchon's binary structure of language and signs, emphasized through constant comparisons between black and white (for example, Weissman and Schwartzchild), and light and shadow. The infinite complexity of the boundary areas of the Mandelbrot set, in which a black bud is outlined in complex, varied forms, offers an analogy to the complex patterning of language and the Arabesque designs that surface out of the background colour of a tapestry or Persian carpet. The Mandelbrot set emblematizes complexity and equivocation that corresponds to that found in language. The

boundary areas described by Peitgen correspond to the excluded middle, the "both/and" that replaces the "either/or" of the co-option used by control systems and in marketing strategies in consumer societies.

Pynchon's analysis in *Gravity's Rainbow* predicts the consumer societies depicted in *White Noise* and *Already Dead* and further extrapolated in *Neuromancer*. The feedback loop iterates and reiterates the positive feedback effects of the media on consumer desire. Consumption serves the interest of technology, as if technology were a deity requiring the sacrifice of human life and health exemplified in *Gravity's Rainbow* in the suffering and death of soldiers and citizens and in *White Noise* in the form of cancer caused by chemical spillage and radiation from appliances and x-ray machines. In *Already Dead* and in *Neuromancer*, drug technology enslaves consumers in their insatiable desire for euphoria and in the need to escape awareness of the ever-increasing spiral of social entropy.

Conclusion

In cybernetics, information theory, and chaos theory, the feedback loop constitutes the most fundamental of structures upon which the diversity of forms depends. An exactly repeating feedback loop bears a striking resemblance to the Greek Uroborus, the serpent holding its tail in its mouth. Most often, however, the feedback loop, as a mathematical iteration, begins each new cycle with a new integer; accordingly, cycles are not exact repetitions of each other but more similar to variations on a theme. The spiral models the usual pattern of repeating feedback loops in complex systems. The strange attractor is an example of a system that never exactly repeats the same path through phase space; its iterations vary around a basic form, for example, the owl's mask.

In dissipative structures, a system may follow a pattern of deterministic chaos for a time, repeating predictable cycles, only to show a sudden disordered behaviour, at which time a slight perturbation will result in a reorganization of the system at a higher level of complexity. When this occurs, the system reaches a point of maximum entropy followed by the leap to a new order. This point of maximum entropy corresponds to the singularity in Pynchon's schema, the point of infinity at which the mathematical function cannot be expressed except in purely formal terms. This type of singularity, which forms a cusp, is found in Stephen Hawking's formulation of the black hole singularity, in which matter and information are compressed and in which time slows to the point of infinity.

This point of infinity halts time, as in the conceptualization of thermodynamic heat death. Pynchon uses the singularity to represent a

transcendental moment with a transcendental image, relying upon the ancient significance of the zero as a representation of infinity. In Hawking's formulation, the black hole singularity with its dense compression of matter and information is a site of space-time curvature in which gravity exerts tremendous force. The singularity, therefore, is a site of awesome power and energy, and therefore an appropriate figure for the luminous, mystical image invested with reverent grace by Pynchon, DeLillo, Gibson, and Johnson, and also understood in its informational complexity by Ridley Scott, the director of *Blade Runner*.

The image is most powerful at the singularity where it remains undisrupted by time because time has slowed to infinity, described by Lentricchia as "the disquieting image removed from the stream of time" (see Ch 3). The enduring power of the image gains intensity at the singularity, as illustrated in *Americana* in David Bell's cinematic treatment of the row of houses shot from a vehicle moving very slowly and with high-speed film to reduce vibration, and, therefore, having the effect of reducing the impression of movement and of time progression. In *Already Dead*, "the hovering non-motion of raptors" illustrates the vastness and power of space without time and motion. In *Neuromancer*, the moment at which Case penetrates the Tessier-Ashpool data core, which Csicsery-Ronay refers to as "his orgasmic penetration" of the database, takes the terms of a black hole singularity in its density of information and transmutes the speed of high-velocity travel through cyberspace into a vast, intense, and colourful image that Case feels in the core of his organic being as existing beyond time. In *White Noise*, the media image, whether in advertising or in cinema, is a means of attempting to achieve this intensity and sense of timelessness, but usually in the interest of selling a product.

Viewed from beyond the event horizon, the black hole singularity is a non-image, an absence, a figuration of Norbert Wiener's description of Augustinian entropy; to cross the event horizon means to be compressed, stretched, and fragmented to an infinite degree. It is not unusual for a reader of *Gravity's Rainbow* to feel such fragmentation, especially the first time through the vortex. Other novels may be less informationally dense and confusing, or may require less background in esoteric mysticism and historical detail. I choose the model of the black pearl for the figuration of the novel of complexity because of the pearl's embodiment of recursive symmetry and self-affinity. One may never be the same after contemplating the black pearl, but one can be reasonably certain of surviving the experience.

The point of singularity at the cusp in Pynchon's model, referred to as the vertex, is also a bifurcation point, where the numbers in the equation switch from plus on one side of the zero to minus on the other side. The bifurcation is a fundamental principle in chaotic forms, representing the point at which one iteration ends and another begins. The integer at the beginning of a new iteration can represent a new point in space-time in narrative. The articulation of parts of speech and the articulation of parts of the body or the machine follow patterns of increasing complexity, or conversely, of increasing entropy. The convergence of the body and the machine in techno-culture may be considered as a symptom of social entropy, just as mathematical convergence follows a pattern of decreasing complexity.

Mark Seltzer describes the suturation of the body and the machine in techno-culture as a sign of social entropy; this suturation occurs on a literal level in *Neuromancer* where human or animal bodies incorporate wetware implants.

A suturation also occurs between technology and the landscape in which the landscape is laid open like a wound so that highways, for example, may be built for vehicles, or so that crops may be grown. Informational entropy occurs in machine culture when informational systems are used in the attempt to represent the individual as a compilation of statistics, thereby reducing the complexity of the human subject to a series of numbers. From the statistical profile a personality profile can be compiled, which reduces the individual to a type within a category. In a more or less crude attempt to resist bureaucratization and categorization, some individuals engage in bizarre activities in an attempt to reach the singular point of uniqueness, for example, by holding a world's record.

In *Gravity's Rainbow*, Slothrop constitutes an example of an informational entity as an individual who has been studied experimentally from an early age. In his quest for self-knowledge, Slothrop finds files of information on himself and learns new things about the factors that have impinged upon his life in the past. Slothrop's demise takes the form of an informational dispersion, which some characters suspect preceded bits of Slothropian data attaining an independent existence in the Zone, as if the Zone were a black hole singularity in which Slothrop has been crushed to bits and then, out of the state of maximum entropy, new Slothrops replicated from those bits in a data parody of reproduction. Jack Gladney in *White Noise* strives to achieve uniqueness and singularity in his physical appearance and spending habits, but finds that his representation as an informational entity in bureaucratized systems infects him with death in the form of a nebulous mass that consumes his body. Babette, his last refuge in organic wholeness, appears on his television screen in a dead

parody of the timeless image of the mother-goddess, removed from the realm of the life-giving organic into the death-giving machinic-informational realm.

The representation as the death of the thing figures in *Already Dead* in the literalized form of Nelson Fairchild, who bleeds to death while completing his journal with the use of a fountain pen dipped in his own blood, like the thermodynamic heat death of a closed system. The blood feathers out into the bond, indicating an informational dispersion not unlike that of Slothrop. However, Nelson's "blood-marbled pages" are not numbered, making it difficult for the police officer, Navarro, to articulate the journal's coherent parts. The human subject represented in words, rather than as a statistical entity in numbers, is more difficult to totalize, to reduce to a simple category, or to dismiss as an exemplar of a personality type. Accordingly, Nelson's disappearance remains unexplained in the official record as a case file that remains open.

Henry Case in *Neuromancer* signifies a similar reduction of the human subject in his desire to become his data and exist in cyberspace without the impediment of the organic body. Case imagines that information is transcendent, that existence in cyberspace would offer a release from physical suffering, but he finds that informational systems, whether cybernetic or organic, have an experiential universality when, in cyberspace, he suffers the sensations of cold and hunger and is recalled to the warmth of organic existence by the beating of his heart. He finds that the replication of information in cyberspace, where his informational double continues to reside, possesses less significance in human relationships than the transmission of genetic information: in a later addition to the Cyberspace Trilogy, Case is revealed to

have four children, indicating that he has experienced an epiphany in becoming integrated into the organic order of life.

The significance of Case's name as a reference to the personality profile or case study indicates that Case is a statistical person. In *Neuromancer*, the artificial intelligence Neuromancer bases predictions regarding human behaviour on the personal history of each character, in the same way that Wiener's AA, the anti-aircraft predictor, was able to anticipate the flight path of fighter pilots based on their past evasive maneouvres. Successful predictions would indicate that humans are learning machines that follow deterministic cybernetic feedback loops in their thoughts and behaviour. However, Neuromancer fails to predict important outcomes in human decision-making, revealing that humans are dissipative structures with occasional stochastic behaviour. In an intense situation, a small factor influencing human decision-making and behaviour may take the form of the butterfly effect, which results in an unpredictable outcome: a small factor may overbalance the system at the point of maximum entropy and result in a new level of organization.

I would like to end my discussion of chaos and order with the image of the mother-goddess Tiamat, the Babylonian mother of chaos. Tiamat is often figured as a chimera with both leonine and serpentine features, illustrating a disorder that confounds categorization. Tiamat emblematizes the point of maximum entropy in a system, perceived as complete disorder, from which some mysterious principle, like a process of microstatic communication, produces a sudden, unpredictable leap to a greater level of complexity which constitutes the birth of a unique system. As a cosmological principle, this birth is the "Big Bang" at the beginning of time from which the universe has evolved,

and which proliferates on smaller scales in multiple processes including the evolution of species, the weather, and the creation of novels.

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