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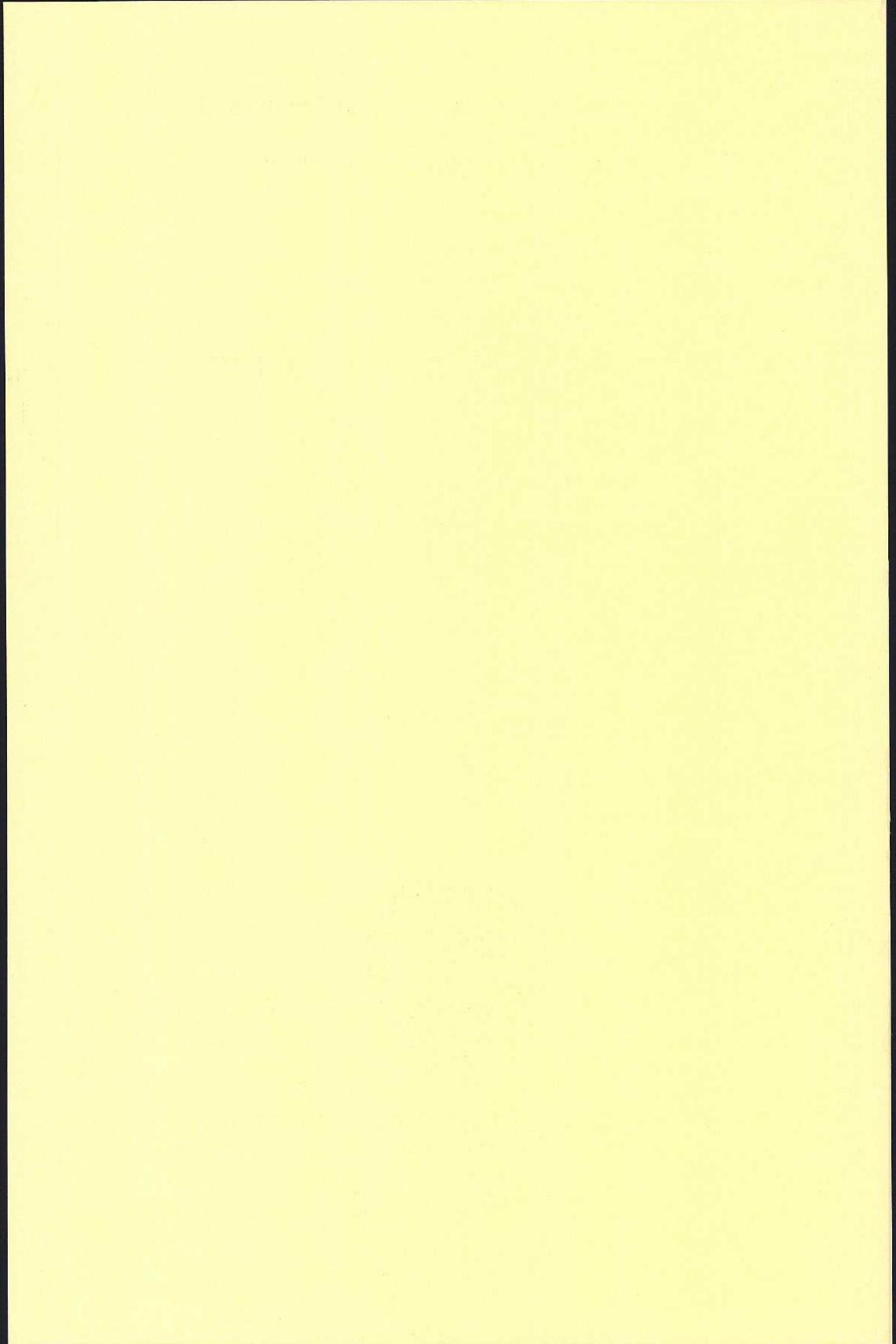
## Literary Texts As Nonlinear Patterns

A Chaotics Reading of  
*Rainforest, Transparent Things,*  
*Travesty, and Tristram Shandy*

HANS C. WERNER



ACTA UNIVERSITATIS GOTHOBURGENSIS  
GÖTEBORG SWEDEN



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## Abstract

My main claim in this study is that complex literary texts can be successfully considered as nonlinear patterns and that Chaos Theory, chaotics, helps us to clarify and appreciate the complexity of such texts. Chaos Theory is not one consistent theory, but a series of concepts and techniques used in a number of disciplines to describe chaotic, nonlinear patterns. Chaotics defines 'chaos' not simply as 'disorder' but rather as great complexity and abundance of information. Ordered parts, however, can be perceived as mixed with chaos, as islands of order in a sea of chaos.

When I analyse literary texts as nonlinear patterns, I draw on the terms and techniques used in other disciplines employing chaotics. I find this appropriate and justifiable because the *principles* of chaotics are the same in different kinds of chaotic systems, even if no exact similarities can be maintained. Like other nonlinear patterns, complex literary texts can be perceived as folded, fractal, fragmented and incomplete. They are unpredictable and impossible to control completely.

Perceiving complex literary texts as nonlinear patterns also entails certain logical consequences for how the narrator and the writing process, as well as the reader and the reading process, are perceived. The author, via the narrator, cannot 'create' or fully control the full complexity of the text. Instead, the complex role of the author (narrator) is to design the initial pattern and to generate paths towards meaning and signification. The reader, too, must accept that he or she cannot completely control the text or decide its meaning. The reader must iterate (re-read) the text. I define reading as an iterative process of (re-)reading going on in the reader's mind, where the material that is processed is derived from the text, but also from sources outside the text, as well as from the reader's previous experiences. The iterative reading process, I suggest, creates space for order and meaning to emerge through self-organization from chaos.

In Chapter 1 I give the basics of chaotics in six sketches. Chapter 2 is meant as an introductory illustration of the application of chaotics to fiction. In Jenny Diski's *Rainforest* I trace a conscious and explicit use of chaos and chaos theory, and my analysis of the novel concentrates on how the characters relate to the chaos they encounter. In Chapters 3 to 5 I attempt deeper analyses of literary texts. First I trace the nonlinearity of *Transparent Things* and follow Hugh Person, the protagonist, in his attempts to gain control of his previous and present life. The complexity and unpredictability of nonlinear systems makes Hugh's attempts almost impossible, and also cause the narrator severe problems in attempting to control Hugh's life and the narrative. Chapter four examines John Hawkes's *Travesty* and its 'tableau of chaos', where the narrator aims at controlling both the nonlinear pattern of the narrative and the car trip that it depicts. The novel is seen as illustrating the crucial moment when the narrator falls silent and transfers the responsibility for the narrative to the reader—the inauguration of silence.

Chapter 5 takes on Laurence Sterne's *Tristram Shandy*, which was written long before 'the era of Chaos Theory'. Even so, in *Tristram*, I claim, nonlinear patterns emerge in the novel's depiction of the world, as well as in the complex structure of the novel itself.

**Key Words:** Chaos Theory, chaotics, nonlinearity, complexity, unpredictability, fractal, randomness, self-organization, Diski, Nabokov, Hawkes, Sterne

## Acknowledgements

During the long process of writing this dissertation I have learned that scholarly writing is not a solitary activity, but depends on the interest and involvement of other people, and debts of gratitude accumulate along with the process. I am especially grateful to Thomas Vargish for his encouragement and unfailing support throughout. Through his perceptive and constructive criticism my text has benefited tremendously. A lot of our contact was performed 'at a distance' when we could not meet in person and I am amazed how well we were able to communicate via fax and mail, the reason for which, I am sure, is the lucidity of his comments and the sagacity of his suggestions. I also owe thanks to Lennart Björk for his kind support and critical scrutiny of my ideas and my ways of expressing them from the first stages of the writing process, as well as his numerous suggestions for improving the structure and organisation of this text. I am also grateful to Danuta Fjellestad for pointing out some theoretical pitfalls to me, forcing me to reconsider and clarify some of the theoretical 'basics' in this study. Thanks are also due to David Dickson for his friendly interest in my project, his readiness to read my manuscript at various stages, and his many questions and suggestions. I thank Bryan Errington for taking on the task of proofreading my entire manuscript and suggesting linguistic adjustments that have greatly improved my text. Last but not least, I thank my family for bearing with me through the long period of writing, and supporting me when I most needed it.

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# 1 Introduction

## 1.1 Chaotics and the Reading of Literary Texts

In this study I will analyse literary texts in relation to the set of ideas usually termed Chaos Theory, the concepts and techniques used in other disciplines to describe complex, nonlinear patterns.<sup>1</sup> It is important to realize that chaos theory is not one consistent theory, but a series of concepts and techniques, used in a number of disciplines, such as mathematics, meteorology, statistics, and medicine. In a broad variety of disciplines chaotic patterns have been found, and the ‘old’ simple order has had to yield and give space to ‘new’ chaos. This ‘new’ chaos does not just signify ‘disorder’. It rather signifies great complexity and abundance of information. Ordered parts, though, can be perceived of as mixed with chaos, or, as Briggs and Peat phrase it, as “islands of order amid a sea of chaos” (63).

My main concern here is literature, but I share an interest in chaos theory with a large number of scholars and scientists, most of them primarily concerned not with chaos *per se*, but with the quests of their own disciplines. As a result of these disparate pursuits, it has become increasingly evident that patterns of great complexity are very much the same wherever they are found. Once chaos theory was established as a

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<sup>1</sup> As Danuta Fjellestad has pointed out to me the word ‘reading’ is somewhat problematic because it signifies at least two things: (1) the reading process and (2) the interpretation that is the result of the process. For the purpose of this study I use ‘reading’ meaning both of these. Frequently I use the word in the first of the two meanings, defining ‘reading’ as the iterative reading process that goes on in the reader’s mind and depends on input from the text, from other external sources, and from the reader’s previous knowledge and experience, leading to a (tentative, temporal) conclusion or interpretation. On some occasions later in this study the word ‘reading’ signifies only the last part of the definition—interpretation. The precise meaning of ‘reading’ should be clear from the context in each usage.

way of looking at the world, it became a part of a new paradigm with a view of the world different from those privileged previously, providing new concepts for describing and new techniques for revealing the complex patterns of chaos. I will claim that complex literary texts too can be successfully considered as nonlinear patterns and that Chaos Theory helps us to clarify and appreciate their complexity.<sup>2</sup>

In this study I will use the word ‘chaos’ in the sense given to it by chaos theory: a complex system consisting of a fusion of order and disorder. Chaos here does not signify only disorder, but order and disorder interlaced. Order is to be found in the midst of chaos, or can grow out of chaos. Subsequently, chaos is not lack of order but richness of information. Because there is so much information, a given system may be perceived as total disorder. When the individual pieces of information start to interact, a process of feedback is initiated, in which each part of the process influences every other part and one change leads to another. At first the connections between elements form quite simple patterns, but as the process proceeds a greater complexity builds up. In this way the volume of information creates an increasing complexity, developing along unpredictable paths. This kind of development is called nonlinear.<sup>3</sup>

A ‘linear pattern’ is all order; a ‘nonlinear pattern’ is the play between order and disorder, creating space for chaos. Linear order has long been seen as the ‘highest’ form as well as the most usual state. Actually, as chaos theory tells us, nonlinearity is the dominating type of pattern in the world around us, not linearity. As Briggs writes, “Regularity, abrupt changes, and discontinuities are primary features of

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<sup>2</sup> The word ‘complex’ can be seen as superfluous in this context because all literary texts, as I will argue, can be seen as complex. In spite of this, I use the word to emphasize that the complexity of literary texts is a very central concept in this study.

<sup>3</sup> Technically the words ‘nonlinear’, ‘fractal’, ‘chaotic’ have slightly different meanings, but in this study they will be used as more or less synonymous. Random(ness) will be used as synonymous to disorder(ed).

life. Scientists call such jagged behavior ‘nonlinear,’ and the name is a clue as to how they feel about it—or felt about it recently. Nonlinear means not linear, and the implication is that linearity is the preferred state” (44- 5). Order that can be fully understood and controlled might be preferred to chaos but it is the odd exception. Even if nonlinear patterns are more common, they cannot be mastered and will never be fully perceived, since the human senses and the human brain are not powerful enough for such mastery, nor is the most potent supercomputer. As a result, nonlinear patterns are often perceived as totally random.

I will explain the key chaotic terms employed in this study as I use them in the following chapters. However, before I start looking at the literary texts, it will be helpful to give some basic information about chaos theory and chaotic systems. As has been pointed out already, chaos theory is not one consistent theory but a whole set of theories and concepts. What they have in common is that they all contribute to our understanding of complex, dynamic, nonlinear systems. When I analyse literary texts as nonlinear patterns, I draw on the terms and techniques used in other disciplines employing chaotics. I think it reasonable to do so because the *principles* of chaotics are the same in different kinds of chaotic systems, even if no exact similarities can be maintained between, for example, a natural system like a rainforest or a weather system, on the one hand, and a social or cultural system like a work of art or a text, on the other. In this introduction I will try to clarify certain pertinent principles of chaotics, and to introduce certain literary-critical approaches. I illustrate these principles and approaches in terms of six sketches.

## **Complexity**

In the first sketch, imagine yourself talking on the phone. For some reason you have a rather bad connection, so it is difficult to hear what the person you are talking to is saying. The message transmitted (what the person

wants to convey to you) is mixed with noise.<sup>4</sup> The message is ordered in the sense that the sequence of sounds transmitted is meaningful to you, whether it is talk, music, or any other sound that you can identify. The noise is chaotic: it consists of sounds that lack meaning for you because it is altogether too complex and you cannot discern any meaningful parts. This means that there may be ordered parts mixed in with the noise, but because of the complexity of the sounds you cannot perceive them. With too much noise you lose the message altogether. In this case the transmission on the line contains both ordered and disordered sequences, order in the midst of chaos: it is chaotic.

Likewise, if you get ten or twenty different conversations totally mixed together they would appear chaotic, even if each individual conversation is perfectly clear and ordered. The impression of disorder is due to complexity. To a certain extent humans (and some well-developed animals) can listen selectively and sort out the message from the surrounding noise. Aided by knowledge of the language and other previous experiences they can also fill some gaps in the flow of information. Thus humans can ‘hear’ a message even under very difficult circumstances. Machines, on the other hand, usually lack this ‘decoding ability’, so other steps must be taken to unravel chaotic messages, as the following example will illustrate.

Mathematician Benoit Mandelbrot was working for IBM, James Gleick informs us, trying to solve

the problem of noise in telephone lines used to transmit information from computer to computer. Electric current carries the information in discrete packets, and engineers knew that the stronger they made the current the better it would be at drowning out noise. But they found that some spontaneous noise could never be eliminated. Once in a while it would wipe out a piece of signal, creating an error. (91)

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<sup>4</sup> ‘Noise’ in this first example means disturbing sounds, but chaos theory uses it as a more general term, as another synonym for ‘chaos’. As William Paulson writes, “By *noise* is meant not loud or obnoxious sounds but anything that gets mixed up with messages as they are sent.” (*The Noise of Culture* ix.)

The receiving computer could not 'know', as a human receiver could, when the message was correct and when it was not, so some other strategy to ensure correctness was necessary. One problem was that the transmission noise was random and came in clusters. Periods of errorless communication would be followed by periods of errors. It proved impossible to predict when these respective periods would come. The system was an unpredictable chaotic system, and Mandelbrot realized that to deal with its complexity and to find a way of controlling errors, the old method did not function. "[I]t meant that, instead of trying to increase signal strength to drown out more and more noise, engineers should settle for a modest signal, accept the inevitability of errors and use a strategy of redundancy to catch and correct them" (Gleick 92).

To conclude: a chaotic system contains both order and chaos, and is impossible to control completely. The only possible strategy to come to terms with this nonlinearity is to appreciate both its complexity and its unpredictability. As we shall see, complex literary texts can be described in terms of nonlinear patterns. When a reader takes on a poem or some other literary text some parts are immediately recognisable and ordered, while other parts are experienced as 'noise'. As William Paulson argues, "the reader does not initially possess all of the codes needed to understand the poem, so that some of its variety is uncoded, or in other words is noise" (LCI 48). The reader must read and re-read the text, and thus single out from noise pieces of information that can form new order.

In this study I will use the term 're-reading' to signify the iteration of texts. As I will explain more fully in a later section, iteration is one of the key concepts in chaotics and indicates a process of repeated feedback and change. Re-reading sometimes means that the reader consciously repeats the 'physical' scanning of the text, making his or her eyes follow the lines of text on the paper, but most often re-reading stands for a mental process in the reader's mind where details and sections of the text are (re-)examined and (re-)considered and where links between different elements, both in and outside the text, are created and tested. This mental

process consists partly of conscious, deliberate 'thinking' and partly of unconscious chaotic developments on a 'deeper' level of awareness resulting in increasingly complex changing patterns of possible meanings. The richness of information in the chaos of the text can thus be made to yield new ordered patterns of meaning. These patterns change as new elements are added and the process of feedback continues. Therefore out of the complexity of the text many different meanings are generated, and not just one received meaning.

### **Turbulence**

The second sketch asks you to imagine yourself standing on a bridge looking down at a brook below. You see the turbulence, the ongoing nonlinear development and change of a complex system of eddies within eddies, but also smooth areas of calm, still water. You can see an eddy appear suddenly, and as abruptly vanish again. A piece of bark or wood dropped into the water floats merrily until it gets caught in a swirl, or is impeded by a big stone in the water, and as surprisingly floats away again. The path of the floating piece is unpredictable, as is that of all the turbulent details of the brook. But the unpredictability is not total. Most of the water is likely to stay predictably in the brook, with the occasional spray of water separating from the rest. Some events can probably be ruled out: it is highly improbable that the piece of wood floats against the current at any time, or that it leaves the water and lands on the bank. While some 'large scale' characteristics are predictable, such as the main direction of the water and the confinement of the mass of the water between the banks, all the small details are unpredictable: exactly when and where swirls and eddies will form or dissipate is unpredictable, and so is the exact path the piece of wood will follow. Such great complexity in combination with the quick changes makes it difficult to get a clear understanding of the turbulent pattern. This, however, is not all that makes it so difficult. As Briggs writes:

Another reason turbulence is so hard to analyse is that it takes place on many scales. Magnify a small-scale portion of a picture of a babbling brook and it looks similar to the larger-scale image; there are folds within folds within folds. At the same time, turbulence, like other forms of chaos, is paradoxical: in the midst of its disorderly motion, vortices may appear and remain stable while the disorderly current boils on around them. (134)

So a turbulent, chaotic system functions on many scales, and displays the typical mix of order and chaos. To understand this changing, turbulent complexity as it appears in literary texts, chaos uses concepts and techniques from science.

As Paulson argues, “what most significantly unites literature and science in our age of noise and chaos is the notion of *complexity* and its implications for interdisciplinary understanding” (LCI 38). The branch of science that is of greatest interest here is

[m]athematical information theory [which] was developed to resolve problems in the transmission of signals. It begins by quantifying information: the information of a message can be measured as the number of binary bits required to encode it. Information is thus a measure of a quantity of possibilities out of which a single actual message is selected; it is, in other words, a measure of the uncertainty of a receiver that will be resolved by the reception of a given message. (LCI 39)

Here it will suffice to say that a message can be seen to consist of meaningful, ordered parts, and noise that is not (yet) meaningful. Noise is all the ‘extra’ information that is mixed with the message that can be, but not always is, transformed into meaning.

From this it follows that “[i]nsofar as literary texts are both communicative and ambiguous, they are noisy channels” (LCI 42-3). Drawing on Jurij Lotman’s *The Structure of the Artistic Text*, Paulson argues “that noise both within and outside the text can lead to the emergence of new levels of meaning neither predictable from linguistic

and genre conventions nor subject to authorial mastery.”<sup>5</sup> This means that the complex literary text “is not fully determined by the linguistic features of which we know it to be made” (LCI 47). In addition, the turbulence of the reading process can generate new levels of textual meaning not predicted and controlled by the author.

The turbulence of the text starts with the reading process and manifests itself for the reader through the changing relationship between noise and meaning. The different linguistic and structural components of the text as well as different elements of content function together in turbulent and unpredictable ways. Not only is the complex literary text nonlinear, but different details can also be given different emphasis by different readers, resulting in radically different interpretations. As Paulson notes, “What will be noise for some readers . . . will be new information for others” (*The Noise of Culture* x). Therefore, there are at least as many interpretations as there are readers; some of the readings are similar, others unique. In addition, the general propensity of the ensuing meanings can change over time through changes in the cultural and social field to which they belong.

The Reader-Response school of criticism puts the main emphasis on the reader and the reading process, and the notion of ‘interpretive communities’, suggested by Stanley Fish, is of especial interest in this context:

Interpretive communities are made up of those who share interpretative strategies not for reading (in the conventional sense) but for writing texts, for constituting their properties and assigning their intentions. In other words these strategies exist prior to the act of reading and therefore determine the shape of what is read rather than, as is usually assumed, the other way round. (238)

The concept of ‘interpretive communities’ reminds us of the ‘sensitive dependence on initial conditions’, which chaos theory defines as the hidden

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<sup>5</sup> Paulson, LCI 43. Paulson here refers to his own *The Noise of Culture*, as well as to Lotman.

unpredictable ruling forces of nonlinear systems.<sup>6</sup> Both Fish and chaotics suggest simultaneous predetermination and unpredictability as determinant factors in the reading process, where, even if it is the process itself that causes meanings to emerge from the text, some of them are determined prior to reading. The outcome of the reading is unpredictable, according to Fish, because no one can decide to which ‘interpretive community’ an individual reader belongs, and according to chaotics, because no one can control in great detail all the relevant ‘initial conditions’. Also, both views perceive textual meaning as something temporal because, as Fish phrases it, “individuals move from one [interpretive community] to another”, and, in terms of chaotics, the iterative process of feedback constantly changes the development of nonlinear patterns (239).

In spite of these parallels between Fish’s ideas of the reading process (as expressed in “Interpreting the *Variorum*”) and my chaotics view of reading, there are also some important differences in emphasis. First, my chaotics view ascribes a greater importance to the actual reading act than Fish does, because only reading can uncover the unique combination of elements that each text contains. As William Paulson writes, “Under an aesthetic of formal innovation and uniqueness, the specific relations between elements of a text are to some degree unique to that text and so cannot have been learned anywhere else” (LCI 48). So to me the (re-)reading, the iteration, of the text is of prime importance when textual meaning is triggered by the reading process, while, to Fish, more is decided prior to reading by “a set of interpretive acts [which] give texts their shape, making them” (236).

Secondly, I do not believe that two separate readings necessarily lead to the same result, even if the initial conditions are similar; while Fish claims that two readers starting from the same or similar pre-reading decisions “will perform the same (or at least a similar) succession of

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<sup>6</sup> ‘Sensitive dependence on initial conditions’ will be more fully explored in the following section, ‘Unpredictability’.

interpretative acts” (237). From a chaotic perspective, readers will bring supplementary elements to their reading, such as tentative decisions and the bulk of their individual knowledge, some of which is shared with other readers, but this does not mean that the two readers will necessarily reach the same interpretative conclusion. In a linear process this kind of conclusive result is possible, but in the turbulence of complex literary texts and the reading process, it is far from certain. Unpredictable nonlinear processes never repeat exactly, so the result can repeatedly be similar, but without warning it can also suddenly change. A radically different reading is often caused by some seemingly minor detail such as a slight shift in the reader’s understanding of a word or a concept. This shift, in turn, may be occasioned by the reading process itself or by some extra-textual factor.<sup>7</sup> The reading process can also create links between elements of the text, or to elements outside the text, that the reader has not been aware of before. The turbulence of the complex literary text changes the relationship between noise and order, generates new levels of meaning, and makes textual meaning unpredictable.

### **Unpredictability**

The third sketch focuses on another phenomenon we have all experienced and often think we know well: the weather. When Edward Lorenz, research meteorologist at the Massachusetts Institute of Technology, simulated the development of weather in his computer, he soon realized that predicting weather was an impossible job. “To most serious meteorologists,” Gleick writes, “forecasting was less than science. . . . It was guesswork” (13). Every slight change in temperature, wind direction and velocity, humidity or air pressure follows simple rules. So, for a day or two developments can be predicted with reasonable accuracy, but even

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<sup>7</sup> I use ‘extra-textual’ as signifying something outside the text. Later I will explain my use of this and other related terms more at length.

after a couple of days the accuracy has gone and the system becomes erratic. The changes are within the framework of the prevailing climate, but impossible to predict with total exactness. Rain, sunshine or thunder can come ‘unannounced’ almost any day.

The reason for this unpredictability is “the Butterfly Effect—the notion that a butterfly stirring the air today in Peking can transform storm systems next month in New York” (Gleick 8). That is, the smallest detail can cause the most radical change. The technical description for The Butterfly Effect is ‘sensitive dependence on initial conditions’. This means that to get accurate output you must have input that is exact to the most minute detail. If your knowledge of the input is not absolutely exact, the outcome is unpredictable. At the same time, because every minor step or change in the system follows simple predictable rules, the development is predetermined. Thus a chaotic system is simultaneously predetermined and unpredictable, and even if its development is predetermined, this development cannot be *known* after its initial stages because the initial conditions cannot be known well enough. Lorenz experienced this, as Gleick informs us, when

wanting to examine one sequence at greater length, Lorenz took a shortcut. Instead of starting the whole run [on the computer] over, he started midway through. To give the machine its initial conditions, he typed the numbers straight from the earlier printout. . . . When he returned an hour later. . . . [he] saw his weather diverging so rapidly from the pattern of the last run that, within just a few months, all resemblance had disappeared. . . . Suddenly he realized the truth. . . . The problem lay in the numbers he had typed. In the computer memory, six decimal places were stored: .506127. On the printout, to save space, just three appeared: .506. Lorenz had entered the shorter, rounded-off numbers, assuming that the difference—one part in a thousand—was inconsequential. (16)

In mathematical simulations, as in real life, very short-term predictions are possible with reasonable accuracy, but the smallest deviation very soon causes the system to go erratic. In real life, measurements can never be detailed enough for long-term prediction. Not even a system of weather sensors one foot apart all over the globe, and a supercomputer not yet

even dreamed of would be sufficient to provide such absolutely exact input data—not even in theory.

‘Sensitive dependence on initial conditions’ proved to be typical of complex systems, and makes predictions hazardous. Briggs writes,

One reason that the elements in chaotic dynamical systems are so sensitive to their initial conditions is that these systems are subject to *feedback*. For example, through its eddies and turbulence, the water in a stream creates feedback by constantly folding in on itself. . . . Systems that change radically through their feedback are said by scientists to be *nonlinear*. As the name implies, they are the opposite of linear systems, which are logical, incremental, and predictable. Linear systems, strictly speaking, are systems that can be described by linear mathematical equations—such things as ballistic missiles and the moon, moving in its orderly orbit around the earth. (19)

At first, the main visible result of Lorenz’s work was computer print-outs of series of numbers. These series seemed to contain elements of repetition. There was never an exact repetition, but the patterns were recurring; there was an “orderly disorder” (Gleick 15). To demonstrate the relationship between three or more variables, Lorenz needed a more visual technique. As he explains,

we may sometimes wish that we could draw graphs or diagrams in a space that has as many dimensions as the number of variables in our system. Often such a task is impossible, but even then the concept of these diagrams can be useful. The hypothetical multidimensional space in which such a diagram would have to be drawn is known as *phase space*. (41)

Lorenz’s first attempt at phase space resulted in a modest three-dimensional space. As with the number print-outs, the recurring patterns, where the path is never repeated exactly, are clearly to be seen in the graphic representation also. This computer-generated picture is called the Lorenz Attractor, and illustrates a deterministic and at the same time unpredictable system. Lorenz coined the expression ‘strange attractor’ for the rather restricted set of possible positions in phase space for the system in question (41).

A ‘strange attractor’ is what ‘draws’ the system to follow a certain

path; it is the hidden master of the chaotic system ‘deciding’ its trajectory. A ‘strange attractor’ could be a single point or a curve, displaying the kind of order inherent in a complex system. A pendulum could give rise to a few different quite simple attractors: for example, the attractor of a (theoretical) pendulum in full swing could be drawn in the shape of a circle or a semicircle; the attractor for a pendulum slowing down would have a kind of receding spiral form; while a (realistic) pendulum, influenced by friction and air-resistance, would have a one-point attractor, symbolising its inevitable ultimate point of rest. However, as will be demonstrated in the following section on iteration, chaos is never far off.

In this sketch, weather has been used to illustrate how a chaotic system is simultaneously predetermined and unpredictable, due to ‘sensitive dependence on initial conditions’. Chaotic, nonlinear systems are subject to feedback, which magnifies small differences in the initial conditions. In this sketch phase space and strange attractors have also been presented.

When complex literary texts are described in terms of chaotic patterns, the characteristic combination of predetermination and unpredictability is often an important feature, as is the work of strange attractors. In her recent book, *Strange Attractors: Literature, Culture and Chaos Theory*, Harriett Hawkins claims that her

central arguments [are] that in literature, as in life, momentous, tragic and unforeseeable results often come from very small causes (‘the butterfly effect’); that the interaction between order and disorder in certain complex works has inevitably generated diverse and unpredictable responses and imitations as well as critical efforts to stabilize their persistent instabilities; and that certain forces metaphorically embodied in certain figures in literature generate instability in ways markedly comparable to the ‘strange attractors’  
.... (xi)

The view that small causes can lead to large effects has not always been acknowledged. As Hawkins points out, there has rather been a “powerful tendency in scientific, literary, historical and biographical studies” to look for, or even construct, a ‘logical’ proportionality between cause and

effect:

Because of the terrible catastrophes and suffering meted out to them, linear-minded moralists have sought to charge tragic heroes and heroines with *correspondingly* great (*quid pro quo*) crimes, vices, sins and fatal flaws. But as chaos theory demonstrates, and as has long been obvious in ordinary life (as in comic as well as tragic art) very small, morally neutral, individual effects - a chance encounter, an undelivered letter (as in *Romeo and Juliet*), or an inadvertent dropping of a handkerchief, or someone else's otherwise insignificant incapacity to tolerate alcohol (as in *Othello*) - can exponentially compound with other effects and give rise to disproportionate impacts. (16)

Not only are characters randomly exposed to unpredictable consequences. Also, as Hawkins demonstrates, 'certain figures in literature' can generate great instability in ways strongly reminding us of 'strange attractors'. One such figure is Cleopatra.

Hawkins reading of *Antony and Cleopatra* depicts the female protagonist as a very complex and unpredictable dominating force. Cleopatra is a mysterious and secretive character who "never reveals her inner thoughts or schemes to us in soliloquy" and her ways of getting what she wants are often seemingly contradictory (137). As Hawkins writes:

It is as if she is an uncontrollable force that never loses control. Her 'storms and tempests' are *both* perfectly natural and artistically contrived. To hold the man she truly loves, she artfully deceives him: 'If you find him sad,/Say I am dancing; if in mirth, report/That I am sudden sick' (I, iii, 4-5). Like a professional entertainer, she always keeps her audience guessing, and leaves them wanting more. (137)

Cleopatra is the 'strange attractor' that draws the system towards chaos, as opposed to the aspirations for order represented by things Roman, and she "personifies erotic and romantic chaos and instability" (142). This struggle between order and chaos permeates all levels of the play:

Thus, the big central conflict between Caesar's Rome, with its priorities of order, power and politics (even its drinking-scenes are politically charged), and Cleopatra's Egypt (with its hedonistic priorities of passion, self-indulgence and sensuality) are enacted in a single line, a single speech, an individual scene, and in the portrayal of individual characters as well as in the outline of the play as a whole. (138)

The nonlinear complexity personified by Cleopatra also includes her gender role: "Not only does Shakespeare's Cleopatra play the termagant, she wears Antony's armour, goes fishing with him, laughs him into humour and drinks him to his bed. And her gender-bending is part of her strange attraction" (149).

As I hope to demonstrate, a chaotic view of complex literary texts as nonlinear patterns provides a useful basis for more general discussions about the function of texts and the creation of meaning.<sup>8</sup> A more guarded and restricted form of this discussion confines the scope of nonlinearity to what Hawkins calls 'certain complex works', but chaotic also provides the means for a comparison of texts traditionally grouped together into different categories. The more radical view is to regard most texts as potentially nonlinear. According to this less guarded form of discourse complexity and unpredictability apply more widely as simple textual forces interact through iterative feedback, re-reading, resulting in nonlinearity and chaos. It is probably quite impossible to conclusively 'prove' that all (or even most) texts are nonlinear, but just the elementary fact that texts depend on language is one strong argument in that direction, because language as a system is notoriously unpredictable and indecisive. However, the main source of textual turbulence is the iterative feedback generated by the reading process. As a result of feedback, nonlinearity increases as new elements are added to the whole and new connections between elements are made. For the reading process it is essential that the 'persistent instability' and unpredictability of textual nonlinearity is not reduced to mock linearity because this would stem the process and reduce its possible outcome. Instead, textual nonlinearity should be appreciated as a necessary requirement for patterns to develop and for meanings to emerge. This development of a text is impossible to predict completely because of its 'sensitive dependence on initial conditions'. Ultimately the

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<sup>8</sup> In this context 'meaning' refers simply to some sort of (more or less complex) order that can be identified by the reader.

unpredictability of the nonlinear text means that neither the author nor the reader can control and predict the development of the nonlinear text.

### **Self-Similarity**

For sketch four, imagine yourself looking at a tree at the other end of a field. You see its main form but no details. As you go closer the perspective changes. At a distance of a yard you are probably unable to perceive the main form of the tree, but shapes very similar may be visible among the branches: the shape is repeated from 'the large scale' to 'the small scale'.<sup>9</sup> "Self-similarity is," as Gleick puts it, "symmetry across scale" (103). This is one form of order within chaos, and a very common phenomenon in nature.

The same self-similarity can be observed if from a helicopter, high up, you are looking down on a coast line. At first all you can see are the larger formations and larger rocks. When the helicopter is lowered, the scale of the picture you see below is changed. Now you can see smaller details. If you are without reference points, you very often cannot tell if you are high up or very near the ground, so scale is important.

Mandelbrot asked, "How long is the coast of Britain?" His answer is somewhat surprising: it is infinitely long; or, rather, it "depends on the length of your ruler" (Gleick 94-6). This is surprising, because at school we have been taught that it does not matter what we measure with; the measurements can always be transformed from one unit of measurement to another. But in chaotics it makes a difference if the ruler is long or short. In this case, as we shall see, the shorter the ruler the longer the coast.

To establish the length of the coastline, one obvious method is to

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<sup>9</sup> An interesting observation by Briggs and Peat is that, "Leonardo da Vinci noticed that branches grow progressively thinner in such a way that the total thickness (putting all the branches together) above any point is equal to the thickness of the branch below" (106).

take a map and a piece of thread, and let the thread follow the (coast)line on the map, and then conclude by reading the result from the scale displayed on the map. However, as we know, maps are approximations, focusing on the main shapes appropriate for the scale chosen, disregarding all smaller details. If we choose a more detailed map, the curved line to measure is less straight, and consequently the length of the coastline will be greater, as Briggs and Peat point out:

If a surveyor makes an accurate survey at, say, 100-meter intervals along the coast, it will be even more finely detailed. In turn the coastline will have a greater length.

But why stop here? Why not survey at 50-meter intervals—10 meters even? In each instance, finer and finer detail will be included and the thread will curve in more and more complex ways. By now it's evident that the more detail that is included, the longer the coastline gets. What if *all* the detail is included—rocks, pebbles, dust, even molecules? The true coastline must be infinite. Indeed the coastline of Britain is the same length as that of Manhattan or the whole of the Americas. They are all infinite. (94)<sup>10</sup>

“In practice,” Briggs adds, “we can agree on a conventional scale and ignore all details below 100 meters or some other figure.” The reason we have to make do with this kind of approximation ‘in practice’ is that patterns like a tree and a coastline are chaotic, or *fractal*.

Mandelbrot coined the term ‘fractal’, based on the Latin “adjective *fractus* from the verb *frangere*, to break” (Gleick 98). Fractal means irregular, fractional and fragmented. As Gleick points, out, Mandelbrot “was looking for patterns not at one scale or other, but across every scale”

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<sup>10</sup> Naturally, the coastline can be infinite only if there is no smallest unit, and we can go on for ever from molecules to atoms to nuclear particles to quarks (?). . . (Perhaps already quarks represent something that is probabilistic and not measurable as physical entities?) So Briggs and Peat’s suggestion is doubtful if it is meant as a description of nature. However, there are other levels of discourse where their remark on infinity is still interesting and probably true. I can discern (at least) three different levels of discourse: ‘Pure’ maths, nature, and culture. After the following paragraph on fractals, I will explore this further.

(86). The complex systems he examined were extremely difficult to examine, at least as long as the only visible results were long strings of numbers on printout paper. When he got more powerful computers, with improved facilities for graphic presentation, he managed to accomplish what had not been done before: ‘The Mandelbrot Set’ is made up of pictures of fractal geometry done with a computer. The variables of a mathematical function are given start values. The result of one calculation is fed back into the function as new values for the variables. Thus a feedback system is created—an eternal, iterant system. To experience this enormous complexity, pictures are necessary. “A voyage through finer and finer scales shows the increasing complexity of the set. . . .” (Gleick, text to fig. after p. 114). ‘The Mandelbrot Set’ is the result of a very great number of iterations. Even with a powerful computer it takes a considerable time to complete one picture, and again to take a new step in or out, to zoom in or out. The fractal is a picture of chaos: it is irregular and its self-similar images are repeated across scale. As Briggs writes, “Fractals are images of the way things fold and unfold, feeding back into each other and themselves. [The term fractal suggests] a geometry that focuses on broken, wrinkled, and uneven shapes” (23, 22).

We have to deal with the main concepts of this section (and with most chaotic terms) on (at least) three different levels of discourse. (1) The first is the level of ‘pure mathematics’, particularly as carried out on computers. At this level we can go deeper and deeper into a fractal *ad infinitum*, and all the time we get new self-similar images that never cease. This level represents the ‘idea’ of self-similarity and the fractal with infinite depth. (2) At the second level, ‘nature’, this notion of ‘infinity’ is no longer (necessarily) applicable. When we say that a fern is fractal, we mean that it has a broken and fragmented shape and that it contains self-similar patterns that repeat across scale, but we do not mean that we can go on for ever deeper and deeper to smaller and smaller scales. As with the coastline, we (perhaps) come to an end when we reach the level of nuclear particles. So its self-similarity is factual, but there are (probably)

limits to how far we can pursue it. (3) On the third level, 'culture', we use concepts such as 'fractal' and 'self-similarity' mainly as symbols and metaphors when we describe, for example, ideas, social and mental processes, artistic expressions, and texts. In this context we use language in attempts to explain abstract ideas, which means that we often use metaphorical language as if we were talking about physical objects. In this dissertation I use the word 'fractal' about texts as more or less synonymous with 'chaotic' and 'nonlinear', drawing on definitions and descriptions of 'pure mathematical fractals' that are complex, fragmented, self-similar, and unpredictable, and whose nonlinear characteristics we can visually demonstrate.

Chaotics considers complex literary texts as fractal, fragmented and self-similar. They are fractal and fragmented because they can never express 'everything': there are always elements missing or only hinted at. These gaps in the text create a tension and force the reader into a more active contribution. This delineation of the text as full of gaps reminds us of Wolfgang Iser's version of Reader-Response theory.

Iser's theory of literature focuses on the reader, who must contribute from his own experience to fill the "gaps of indeterminacy" in the literary text (228). Iser sees the text as built up of "literary objects" which are constituted in stages by the "unfolding of a variety of views" where "each single view will generally reveal only one representative aspect" of the 'object' (228-9). But the problem is that for everything that is determined, a need arises for further determination, and gaps of indeterminacy appear in the text. The gaps must be filled by the reader, because "it is quite impossible for the text to fill the gaps. In fact, the more a text tries to be precise . . . the greater will be the number of gaps between the views" (229). So the reader must use his experience and his imagination to fill the gaps of indeterminacy in the text. Iser verbalizes "the suspicion that literary texts are resistant to the course of time, not because they represent eternal values that are supposedly independent of time, but because their structure continually allows the reader to place

himself within the world of fiction” (230). It is left unclear whether the text or the reader is in charge of the reading.

Three comments can be made on the relationship between Iser’s ideas and chaotics as I am using it here: First, Iser’s view of the ‘gaps’ in the literary text appears, at least initially, to correspond closely with the description of a literary text as a fractal nonlinear pattern. But the gaps in nonlinear literary patterns are of different kinds. Some gaps are caused by ‘misplaced’ textual elements which can be found elsewhere in the text: there is a gap in the text because its pattern is broken, or folded, and elements belonging together are positioned in the text far from each other. Later I will demonstrate how this very common type of gap in literary texts can be understood in terms of ‘mathematical folding’, analogous to ‘the baker’s transformation’. Other textual gaps depend on extra-textual references or sources, while still others are just missing items. The problem for the reader is to decide which type of gap it is.

Secondly, when Iser claims that the reader should fill the gaps by using his experience, this could agree with a chaotics view, if the gap depends on an outside source or some particular knowledge. The risk, however, is that the reader is tempted to add to the text material that is ‘not needed’ or ‘does not fit’. Again the problem is that the reader will never be able to judge absolutely if he is adding such alien material. What the reader needs is a reading strategy that can deal with the gaps and other types of incompleteness in the text. One of my main arguments in this dissertation will address this issue, and sketch a critique of a reading process in line with the view of literature as nonlinear patterns.

Thirdly, one question left unsolved by Reader-Response criticism concerns the relationship between text/narrator/author and reader, and who is ‘in charge in the act of reading’.<sup>11</sup> A chaotics critique of the

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<sup>11</sup> Let me point out that I am not mixing up narrator and author. I just group them together here because both terms represent the ‘writing’ part of the relationship, while the reader, obviously, represents ‘reading’. In the discussion of writing/reading I will develop in this dissertation I will focus (mainly) on the literary

reading process perceives literary texts as nonlinear patterns that can never be totally predicted or controlled by either the writer or the reader. As Hawkins, applying chaotics, observes,

(and here chaos theory gains strong support from poststructuralism) neither the author nor the reader nor the critic can finally control how all the variables operative in a complex text will interact, or predict exactly how they will combine to produce meanings that may differ from reader to reader in impact, inspiration, and so on. (19)

One reason for this unpredictability is that in reading, as in other nonlinear processes (so chaotics tells us), the relation between cause and effect is often surprising, as small causes can lead to dramatic changes of meaning. In chaotics, the reading process is not seen as a single, linear path through the text, but as an iterative process of re-reading. The result of the iteration is that new links between elements are created and changed through feedback, and new meanings emerge. By iterating the text the reader can unfold some of the complexity and find ‘threads’ between related fragments, and also link the text to outside elements.

This strategy of reading partly depends on the self-similarity of the text, which can be found at different levels. Important properties of the text can be revealed through repeating images (at the same level), or through patterns that are repeated across scale, where the patterns found in details are repeated in the overall structure of the text. Parts of the text thus provide clues for the structure of the whole text. The self-similarity represents a kind of order in the chaos of the text.

## **Iteration**

For sketch five, let us consider a pendulum. What could be more regular and predictable? The same movement seems to be iterated and the pendulum swings back and forth, back and forth. A graphic representation

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text ‘as it stands’ (as it is available in its printed form). Therefore it would be inconsistent to put emphasis on the author, who, after all, is outside the text.

of its movement, its attractor, would be a neat, regular curve, the picture of linearity. Of course this regularity only exists in theory, but for centuries the dominant theory disregarded friction and air resistance and the pendulum was considered as regularity and linearity typified. Underlying the constancy of the pendulum is a gravitational force causing movement and change along a regular and predictable linear trajectory, and as long as there is only a single force involved, at least a theoretical linearity can be maintained. However, this linear stability can easily be disrupted by the introduction of a second force that increases the complexity of the system. If a second pendulum is attached to the first, forces are combined, and the behaviour of the system changes completely.<sup>12</sup> As soon as the two pendulums are set swinging their movements mutually affect each other in increasingly unpredictable ways. The linear behaviour of the system is soon lost as a result of an iterative process of feedback, where each result (effect) becomes the cause of a new development of the system. From linear systems we are used to finding a considerable proportionality of scale between cause and effect: a small cause leads to a small effect, and large cause leads to large effect. In nonlinear systems this proportionality cannot be relied on. A small cause, like the flutter of the wings of the butterfly, can result in extensive effects. Through the combination of linear forces within an iterative process, complexity increases, linearity is lost and the system becomes unpredictable, erratic and nonlinear. The unpredictability of nonlinear systems requires a set of initiating factors to enable change, but the main reason for the erratic development is the iterative process.

In a nonlinear system, simple, predictable developments (movements) combined result in unpredictable and random patterns. As Ian Stewart points out, "Everyone who uses a cake-mixer, egg-whisk, or food processor is performing an exercise in applied chaos dynamics. A

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<sup>12</sup> Naturally, the gravitational force is one and the same, but after the addition of the second pendulum, gravitation is made to work on two individual but connected elements, thus creating pulls in diverse directions.

mechanical device, moving in a regular and predetermined fashion, is randomizing the ingredients. How is this possible?" (146) As we have just seen, what causes chaos to appear is the iterative process: by long series of repetitions, a great number of small steps are taken from constantly changing new positions. As Briggs and Peat explain,

The movement of the type of nonlinear iteration found in so many systems can be visualized in terms of a baker kneading dough to make bread. With his fists the baker stretches out the dough and folds it over on itself, repeating this stretching and folding over and over again. In fact, mathematicians call what happens to a nonlinear equation when it is iterated "the baker's transformation." This transformation has the effect of moving neighboring points in the dough away from each other. A series of elastic threads placed in the dough would eventually become stretched and folded into a very complicated, unpredictable (and hence chaotic) pattern. Mathematically, this process of stretching and folding takes the form of a strange attractor. (71)

By simple iterative processes of stretching and folding, the ingredients of the dough are randomized. Two raisins put in the dough constantly shift positions in relation to each other: they may be close or far apart. Two raisins that start next to each other may well end up far apart or next to each other.

In similar ways, literary texts achieve their complexity from the iteration ((re-)reading) of simple elements. Chaotics shares this view of texts with poststructuralism, especially deconstruction. As Katherine Hayles summarizes, "Derridean deconstruction and nonlinear dynamics are strikingly parallel in a number of ways. They agree that bounded, deterministic systems can nevertheless be chaotic; they both employ iteration and emphasize folds; and they concur that originary or initial conditions cannot be specified exactly" (*Chaos Bound* 184). A chaotics critique also shares with Derrida his argument that "since one never transcends culture, one can never examine it from the 'outside'" (Davis

and Schleifer 240).<sup>13</sup> Chaos theory has been called a ‘theory of wholeness’ because it depicts everything as linked: everything belongs to the same field where each element can potentially influence every other part of the system. As Hayles writes,

The field concept implied that reality consists not of discrete objects located in space but rather of an underlying field whose interactions *produce* both objects and space. It further implied (and this was perhaps its most important consequence for literature) that there is no exterior, objective viewpoint from which to observe, for one is always already within the field, caught in and constituted through the very interactions that one is trying to describe. (*Chaos Bound* xi-xii)

Because everything belongs to the same field, there is no exterior ground and the complexity of the literary text includes the reader. Therefore he can never be just an objective, outside observer of the text. His role is to work actively with the text by iterating it, thus further increasing its complexity and as a result preparing for meaning to emerge.

However, when literature is studied according to paradigms advocating linear patterns, irregularities tend to be explained away, and the ensuing neat picture is often a simplified clean structure that disregards elements that disturb the linearity of the preferred pattern. This kind of reading process renders the literary characters and patterns more linear and ordered. As Hawkins notes,

A general goal in much of Shakespeare criticism, past and present, has been to impose linear (psychological, moralistic or structural) order on Shakespearian chaos, and often, by extension, to see the author as a conscious or unconscious spokesman for the reigning political, domestic, moralistic or ideological order of his time. (134)

A chaotic literary analysis, on the other hand, accepts and acclaims

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<sup>13</sup> I am aware of the potential for comparing more fully the relationship between poststructuralism and chaos and would like to see this interesting direction more thoroughly explored, but leave it to others to perform since there seems to me to be material enough for a whole new project. It would be suitable for scholars specialising in literary theory, while my current study attempts to relate science and literature.

textual complexity and nonlinearity. Complex literary texts are seen as nonlinear, as very rich in information, and their complexity is described using the concepts and techniques of chaotics. But chaos theory, as Hawkins argues, also “provide[s] important *theoretical* perspectives on the persistent instability that characterizes the dynamical interaction between order and disorder both in canonical and popular fictions” (ix). So the more radical claim is that nonlinearity, the mix of order and disorder, can be found in a broader range of texts of varying complexity. Here different texts are not seen as belonging to and defined by different, completely separated categories, but rather as texts that can be individually defined and compared. Hawkins concludes:

Thus, a definition of complexity which involves our apprehension of the pleasures and difficulties involved in works manifesting a comparable richness of informational content and detail on all scales allows us to distinguish between, yet simultaneously relish, both a complex work like *The Tempest* and a science fiction spin-off such as *The Forbidden Planet* that mimics its outline and character-types without attempting to offer comparably detailed complexity on more than one clearly designated scale. (13)

A chaotics analysis attempts to avoid explaining away elements that cannot immediately be seen to fit into the pattern; instead complexity and unpredictability are seen as necessary conditions for meaning to appear. Chaotics never claims full mastery of the text, but by treating the complex text as a nonlinear pattern, the interpretative process of iteration prepares a way for meaning to emerge. We will examine this process in detail in the chapters that follow.

### **Self-Organization**

The sixth and last of my sketches deals with how order can emerge from chaos. Here order means regularity, regular patterns that can be sorted out and separated from their surroundings. However, this regularity is temporal, ie. time-dependent, and mixed with chaos. In a nonlinear pattern, the play between order and chaos is a constantly ongoing process,

where order is built up and dissolved. Temporality, therefore, is a crucial aspect of nonlinearity and illustrates the complex relationship between chaos and order. Each phase of the development of the nonlinear pattern is confined to its 'space', defined by the factors, or dimensions, involved, and to its 'time'. I have already used Lorenz's term 'phase space', the 'hypothetical multidimensional space' needed to draw a diagram of a very complex system. Elisabeth Deeds Ermarth has suggested the term 'phase time' to signify the temporal aspect of nonlinear systems.

Describing a physicist's computer simulation of a nonlinear process, Ermarth writes:<sup>14</sup>

A computer-graphic record of the sequence shows no repetition. At any point in the sequence, some regularity can be described, but regularity is limited to a phase of the process, and does not extend through the entire process. This limit is what I propose to call, 'phase time'. Regularities of one phase disappear and others begin, and with them a new phase in which preceding regularities are left behind and do not recur. This phase, both in time and in space, is finite. (98)

For another manifestation of this kind of complex temporal order, let us return for a moment to the brook and once again look down at the water. We can see how ordered patterns emerge and disappear. Swirls and vortices seem to appear spontaneously. In some places they stay for a while before they disperse; in other places they are more short-lived. These patterns are ordered, but their order is complex, fractal, and temporal. They represent a kind of transient stable chaos that with changing conditions will again lose its stability. Snowflakes also illustrate this mechanism of organization and dispersal: they are spontaneously organized and shaped on their way down when the conditions are right and stay stable for as long as conditions remain favourable. They lose their shapes again when conditions, for example temperature, no longer permit them to stay as they are. In this way regularity (order) emerges, and disappears. Order appears to emerge spontaneously from the surrounding

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<sup>14</sup> This experiment simulated the motion of a magnet pendulum, and the result was a continuous flow of data describing its sequential development.

chaos, and disappears when the conditions are no longer 'right'.

Ilya Prigogine has made controversial contributions to this discussion by claiming, as Alvin Toffler writes, "that order and organization can actually arise 'spontaneously' out of disorder and chaos through a process of 'self-organization'" (xv). Like chaos this phenomenon can be observed in a broad variety of environments, as Briggs and Peat write:

... Prigogine and his colleagues see self-organizing structures emerging everywhere: in biology, in vortices, in the growth of cities and political movements, in the evolution of stars. He calls instances of disequilibrium and self-organization "dissipative structures." . . . The name *dissipative structure* expresses a paradox central to Prigogine's vision. Dissipation suggests chaos and falling apart; structure is its opposite. Dissipative structures are systems capable of maintaining their identity only by remaining continually open to the flux and flow of their environment. (138-9)

Order and structure are often built up at the cost of increased disorder, dissipation and randomization of other structures, in ways similar to how food is used by a living body to sustain life. As Prigogine and Stengers put it:

life . . . appears as the supreme expression of the self-organizing processes that occur.

We are tempted to go so far as to say that once the conditions for self-organization are satisfied, life becomes as predictable as . . . a falling stone. It is a remarkable fact that recently discovered fossil forms of life appear nearly simultaneously with the first rock formations. . . . The early appearance of life is certainly an argument in favor of the idea that life is the result of spontaneous self-organization that occurs whenever conditions for it permit. . . . A system far from equilibrium may be described as organized not because it realizes a plan alien to elementary activities, or transcending them, but, on the contrary, because the amplification of a microscopic fluctuation occurring at the "right moment" resulted in favoring one reaction path over a number of other equally possible paths. . . . Self-organization processes in far-from-equilibrium conditions correspond to a delicate interplay between chance and necessity. (175-6)

Order, according to this view, is not created, but can emerge from chaos

through self-organization. When the conditions are right, chance and necessity in combination form shapes of order, even life, out of chaos. "Chaos," says Gleick, is "the creation of information" (260).

Perceiving complex literary texts as nonlinear patterns extremely rich in information calls for a model that shows how the order (meanings) of the text can emerge. Seeing texts as very complex patterns that are impossible to control leads to a fresh view of the reading process, and to the idea that textual meaning(s) can emerge through self-organization from chaos. Naturally, this idea is a construction, a metaphorical application of a concept from another discipline used in order to understand better the function of texts and the mechanics of reading. As William Paulson tells us:

Self-organization from noise [chaos] . . . provides a framework for understanding how organized variety, information, even meaning can arise from interaction with disorder. . . . The process of self-organization from noise provides a suggestive model for the understanding of literary signification, a model that accounts for meaning by accepting, rather than resisting, the rhetorical dimension of language. (LCI 40-1)

Self-organization from chaos is consistent with a view of complex literary texts as nonlinear patterns that potentially yield more than the original components of the patterns.

The complex literary text can be perceived as a nonlinear pattern because it is complex, fractal and unpredictable and because it has an organizational nature that thrives on the play between order and chaos and between different levels of signification. Complexity, Paulson remarks, "is inextricably bound up with our modern notion of literature" (LCI 41). Like all nonlinear patterns, the complex literary text is not static but constantly developing. Drawing on Jurij Lotman, Paulson notes that

the organizational nature of works of art, [is] itself a particular type of play between redundant order and informative surprise. The artistic text begins as an attempt to go beyond the usual system of a language—in which the word is a conventional sign—to a specifically artistic system such as that of poetry, in which sounds, rhythms, positional relations between elements will signify in new ways. The poetic text, in other

words, demands of its reader that she create new codes, that she semanticize elements normally unsemanticized.<sup>15</sup>

As with works of art, the complex literary text is the foundation for a process of creation in which the text interacts with its reader.<sup>16</sup> This process demands a certain kind of cooperation from the reader that takes into account the different levels of signification typical of the complex literary text. As Paulson claims,

Whereas in nonartistic communication there can be *extrasystemic* facts, which are simply ignored or discarded because they are not dealt with by the codes being used to interpret the message, in an artistic text there are only *polysystemic* facts, since whatever is extrasystemic at a given level, and thus destructive of regularity or predictability on that level, must be taken as a possible index of another level, another textual system with a new kind of coding. (LCI 44)

So the role of the reader of a complex literary text is a very active one. But neither the text (author, narrator) nor the reader can create meaning (order) unilaterally. Instead, meaning is brought forth through the act of iteration ((re-)reading).<sup>17</sup>

Literary meanings emerge through self-organization. As Henri Atlan writes, “permitting chance to acquire a meaning *a posteriori* and in a given context of observation—that is ultimately how we can describe what self-organization is” (qtd. in Paulson, LCI 41). Chance (randomness) is involved in the iterative reading process in determining what elements play a part in the emergence of meanings, and what links are created between elements within as well as across levels. Paulson claims:

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<sup>15</sup> Paulson, LCI 43; drawing on Jurij Lotman, *The Structure of the Artistic Text*, trans. G. Lenhoff and R. Vroon: Michigan Slavic Contribution, 7 (Ann Arbor: University of Michigan. Department of Slavic Languages and Literatures, 1977.) 55, 59.

<sup>16</sup> As Britta Olinder, Senior Lecturer at Göteborg University, suggested to me at a seminar, chaos theory can justly be called ‘the theory of creation’.

<sup>17</sup> As I will explore later, the narrator cannot create meaning, but one of his tasks is to guide the reader towards certain interpretations.

The attempt to bridge the discontinuity between an emergent level and its environment implies a process of self-organization from noise. As a schema of cognition, self-organization from noise describes situations in which knowledge is but partial, the ignorance of codes bound up with the presence of information. (LCI 46)

The new order (meaning) that emerges is the product of ‘the context of observation’, which is the field that includes, but is not restricted to the text, the reader, and what Katherine Hayles has called ‘the predominant cultural context’.

At a very practical, quotidian level I take the self-organization of meaning to work like this: The iteration, re-reading, of the complex literary text generates an endless succession of ordered patterns of images and ideas. The reading process produces ordered patterns by linking elements at the same or different levels of the text, and also by opening up for additional material from outside the text. These additional elements include input from the reader’s previous personal experience and knowledge, mostly from within the framework of ‘the predominant cultural context’. One immediate effect of the iteration of the text and the addition of new elements is that complexity increases, chaos builds up, giving space to the process of self-organization leading to fresh and unpredictable combinations of textual elements.

Possible combinations are limited by ‘the context of observation’ which functions as a filter that excludes certain images and ideas as irrelevant, or even impossible, and recognizes others as relevant. Strong preferences influence the reader’s focus and can restrict the reading to some particular aspects of the text. Such restrictive reading of texts filter meaning in ways reminding us of Stanley Fish’s “interpretative communities” accepting only certain meanings (Fish 238).

As the iterative reading act proceeds, the images and ideas produced by the process form a new temporal order of meaning that is subject to change and confines each new pattern of meaning (order) to the duration of its phase time. During the reading process new meanings continuously appear and change, as new data, new information, is added

to the old when the text is re-read (iterated), or when links to extra-textual elements are created by the text and by the reader. As Ermarth has phrased it, "Reading is an experience of completion and departure, completion and departure, completion and departure, not in a simple linear series but in multidimensional and intensely specific sites. . . ." (101). A chaotic reading is not a linear finite process, but an ongoing iteration, re-reading, of the text, leading to a constant reconsideration of meaning. The reader cannot himself create this meaning, but he must iterate the text in order to prepare for the emergence of order through self-organization.<sup>18</sup>

In these six sketches, we see that the chaos of chaos theory is not just disorder but an abundance of information; it is a concept of complex patterns with order and disorder together. Chaos is nonlinear and unpredictable, but at the same time predetermined. Chaos is predetermined by its initial conditions, and at the first steps of the iterative process simple forces work in predictable ways where every little step follows strict rules. Very soon, however, the system goes erratic, unpredictability sets in, and proportionality between cause and effect can no longer be relied upon. Strange attractors are the hidden 'maps' or codes that the systems always follow. A fractal is an image of chaos, suggesting broken, wrinkled, and uneven shapes. Chaos cannot easily be ordered, but order can emerge out of chaos through self-organization.

Scientists in a broad variety of disciplines have found that chaos theory opens up new, unexpected and constantly changing possibilities of understanding. As soon as the complexity of the nonlinear system is

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<sup>18</sup> This self-organization results from re-reading (cf. note on p. 6) and even though a certain amount of 'free' (deliberate) choice on the reader's part is possible, the main contribution from the reader in the 'organization' of elements into meaningful, ordered, patterns appears (to use Fish's phrase slightly out of its context) to be 'doing what comes naturally'. To the individual reader certain ordered patterns, meanings, seem more 'natural' than others. The reader has not deliberately constructed these 'natural' meanings, instead their structures are 'self-organized'.

accepted, and the search for artificial and nonexistent regularity and order is abandoned, a new kind of interpretative process can commence.

In this study 'literary texts' are texts of considerable complexity. Whatever the intended use of the text, its complexity is at play across different levels and calls for interpretative techniques. All texts, however, do not become erratic; for example, a simple, single-level newspaper text or a personal letter may well contain only one or two lines of information. It will stay linear, and can thus be interpreted in one way only, because the line from sender to receiver stays intact and no elaborate interpretative act is necessary. But such linear texts, if they exist, are very rare. Most often, like all communication, texts contain noise that interferes with messages and opens up for different interpretations and different meanings.<sup>19</sup> In other words, noise increases the nonlinearity of the text. Individual words often contribute to this nonlinearity, because all words, as Saussure teaches us, depend on their interaction with other words within the linguistic system in which they acquire their meaning. All words have shades of meaning and different connotations, so every word of a text must be interpreted to be able to convey a message.

To yield meaning the text must be read and considered, because a text not read is a dead product, and only the reading of it can initiate the process towards signification and meaning. Some parts of a text may be quite easy to interpret and are intelligible from the start, while others may seem totally impenetrable and unintelligible. By iteration of the text, re-reading, the reader can prepare for meanings to emerge through self-organization.

Each reader, of course, influences the meaning of the text by adding

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<sup>19</sup> As we have seen, noise represents 'anything that gets mixed up with messages' and is not (yet) formed into ordered meaning. (See footnote in the Complexity section of this chapter)

to it from his or her own experience.<sup>20</sup> Therefore readers emphasize different elements of the complex text, or rather of the field focusing the text. So instead of limiting the text to one received meaning, chaos theory opens the text for a multitude of readings. Thus, the chaos of the text denotes expanding openness and new interpretive possibilities, as texts, as Tristram claims, tend partly to live a life of their own.

## 1.2 Chaotics Criticism

In this project I am not following any strict 'chaotics school of criticism' prescribing what to do and how to read. I am not even aware of the existence of any such body of dogma. As I see it, chaotics represents more of a general outlook, a set of ideas describing the world, including literary texts, in ways used in a number of different disciplines. In chaotics, interdisciplinary links are often created with literary studies and literary theory. Of special importance in this respect is Paulson's work connecting information theory to literary significance and the idea of self-organization from noise, as demonstrated in the Self-organization section of this chapter.

In addition to Paulson, two critics are of particular interest to me, N. Katherine Hayles and Harriett Hawkins. Although their explorations in the field of chaotics have different aims from mine, their work has inspired and instructed me. Therefore, I will give an account of their work in some detail, in order to demonstrate what has previously been done within the field of chaotics as applied to literature, and I will comment on similarities and differences between their work and mine.

The first of these critics, N. Katherine Hayles, has a background in natural science and has been active in the field of chaotics for several years. In *The Cosmic Web: Scientific Field Models and Literary*

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<sup>20</sup> Cf. my discussion, in connection with Iser's ideas of textual 'gaps', of the role of the reader's experiences.

*Strategies in the Twentieth Century*, Hayles has “singled out the ‘field concept’ as the theme that is at the heart of” “the most important conceptual revolution since Copernicus” (9). As we have seen, according to the field concept, all things, including the observer, are interconnected, and belong to the same field.<sup>21</sup> Because there is no “exterior, ‘objective’ point from which to observe,” all observation must be made from within the system by an observer who is part of the system and all description must be made in a “language [that] is part of the field being described” (20-1). Another important aspect of the field concept, as Hayles points out, is “the notion of the *self-referentiality* of language. Because everything in the field view is connected to everything else by means of the mediating field, the autonomy assigned to individual events by language is illusory” (10). Not only is everything connected, but interactions are multi-directional. As we have noted before, chaos theory tells us that the old relationship between cause and effect breaks down, and we can no longer, as Hayles argues,

define a linear one-way interaction between the event regarded as a “cause” and that considered as an “effect.” But when the interaction is multidirectional—when every cause is simultaneously an effect, and every effect is also a cause—the language of cause and effect is inadequate to convey the mutuality of the interaction. (19-20)

An increasing complexity is one visible effect (and probably also a cause) of these multi-directional interactions.

Hayles also points to the striking structural similarities between language and literature within the field view:

When Saussure argued that the entire linguistic structure changes with the addition or omission of a single lexical unit, he conceived of language as an integrated, nondivisible whole, that is to say, as a unified field composed of parts but not reducible to the sum of its parts. (22)

The same ideas about the field model also prepare the way for the assumption, as Hayles states it, “that literature, like language, is an

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<sup>21</sup> Cf. the treatment of the field-concept in the section on Iteration above.

internal system that has no necessary reference to anything outside itself” (23). In other words, there are no mimetic links between literature and “real life,” and Hayles finds it appropriate to apply the term “anti-realism” (23). “A conservative example”

is Conrad’s *The Heart of Darkness*, in which external reality is filtered first through the narrator, then through the internal perception of the protagonists, so that the meaning exists, as the narrator asserts of Marlowe’s storytelling, not as the kernel of the nut but as a kind of luminous haze without a definitive locus in the signifiers themselves. (23-4)

Thus both language and literature can be described in terms of internal systems and unified field.

The idea of a unified field represents a radical change from the Newtonian atomistic view of physical objects as discrete, and events as independent from each other and the observer. Hayles has examined the “various manifestations [of the field concept] in the models of physics and mathematics, the theories of the philosophy of science and linguistics, and the structure and strategies of literary texts” (9). “The only way,” Hayles writes, “to approach a satisfactory understanding of the field concept is to examine and compare a wide range of phenomena that embody it; and that is the major burden of this book” (9).

In the first part of *The Cosmic Web*, Hayles provides a detailed account of the growth of the field concept in science, quoting from and referring to scientists like Werner Heisenberg, Kurt Gödel, Albert Einstein, Niels Bohr and others. In the second part,

the literature is [viewed as] an imaginative response to complexities and ambiguities that are implicit in the [scientific] models but that are often not explicitly recognized. Thus a comprehensive picture of the field concept is more likely to emerge from the literature and from science viewed together than from either one alone. In this sense the literature is as much an influence on the scientific models as the models are on the literature. (10)

*The Cosmic Web*, Hayles writes, “is primarily a study about literature . . . and my major emphasis is on how literary theory and form

have been shaped by the change of paradigms" (22).<sup>22</sup> Literary texts are chosen "that would reveal how wide the range is of literary strategies that can emerge from an author's encounter with the field concept; . . . texts that would evidence varying degrees of knowledge and sympathy towards science" (25). Hayles's focus seems to be more on the authors than on the literary texts, as she examines how the five writers of her choice are influenced by the new scientific ideas and how these ideas are manifested in the literary texts of these writers.

In *Chaos Bound. Orderly Disorder in Contemporary Literature and Science*, Hayles paints a broader picture of chaos theory and its application to literary texts. She distinguishes two general emphases:

In the first, chaos is seen as order's precursor and partner, rather than as its opposite. The focus here is on the spontaneous emergence of self-organization from chaos. . . . The second branch emphasizes the hidden order that exists *within* chaotic systems. Chaos in this usage is distinct from true randomness, because it can be shown to contain deeply encoded structures called "strange attractors." (9)

Hayles emphasizes that there is no simple one-way influence from science to literature and literary theory, but rather that ideas change simultaneously in very similar ways in many places. For example, in "The Fall of the House of Usher [1839]," Edgar Allan Poe "anticipated the second law of thermodynamics, which was formulated by Sadi Carnot and

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<sup>22</sup> In *Cosmic Web* (16-21), Hayles gives a historical account of the development of paradigms: The *eighteenth-century* rationalists saw the world as a clock, or a machine, consisting of parts that could be detached and put together again. The method of investigating such a machine was through "linear chains of inductive and deductive reasoning." In the *nineteenth-century* the world was perceived and described in terms of the Romantic image of an organism. Changes in this organism were seen as dynamic, as, for example, evolution in biology. "If a living being is dissected, the essential quality of life is destroyed." In this kind of construction "the whole is often something other than the sum of the parts, and this 'otherness' was identified with the life force." The *twentieth-century* metaphor for the world is a "cosmic dance", a cosmic web, where "a strict separation between subject and object is not possible" because "there is no point outside it."

others about this time” (21). The House of Usher displays expended energy and structures collapsing into fragmentation and chaos. Another example is Hayles’s description of “the transvaluation of entropy as it moves from classical thermodynamics to information theory. . . . [and how] *The Education of Henry Adams* [exhibits] similar ideas at work in a literary text. In *The Education*, the chaotic void becomes the space of creation” (*Chaos Bound* 25). In Doris Lessing’s *The Golden Notebook*, Hayles discovers “an interest in recursive symmetries as a principle of organization, [and] an awareness of how small fluctuations can effect large-scale changes” (27). “The recursive structure of *The Golden Notebook* does share certain general characteristics with chaos models. . . .” (243).

With examples from Paul de Man, Jacques Derrida, Roland Barthes and others, Hayles demonstrates many parallels between chaos theory and poststructuralism, and claims that while the “new concepts of chaos and randomness are changing the way scientists think about informational systems, they are also affecting the way literary critics write about texts” (175). Thus, as in *Cosmic Web*, Hayles focuses on how the same set of ideas dominating many branches of science also gains influence over literature and literary criticism.

Hayles declares that her “purpose is to blaze a trail rather than cover the terrain” (*Cosmic Web* 11), and certainly this trail has been an inspiration to me, even though I am not treading precisely in Hayles’s footsteps, as my focus is markedly different. While Hayles’s focus is on authors of literary texts and how they can be seen to be influenced by or to use new scientific concepts, my focus is on literary texts themselves, and how they can be described using the terminology of the sciences of nonlinear systems. Allowing for external influences on the reading (within the field), I share Foucault’s view that

the task of criticism is not to bring out the work’s relationship with the author, nor to reconstruct through the text a thought or experience, but rather, to analyze the work through its structure, its architecture, its intrinsic form, and the play of its internal relationships. (343)

This means that while Hayles links authors and scientific ideas within a poststructural paradigm, or claims, for example, that Poe ‘anticipated’ certain scientific ideas, I place the author (who is outside the text) in the background and instead aim at demonstrating certain general characteristics of literary texts, claiming that these texts are complex, fractal and nonlinear. For example, I do not claim that Laurence Sterne knew about chaos or anticipated certain scientific ideas; instead I describe how Tristram, the narrator, can be observed to depict texts generally, and to design his own particular text in ways very similar to systems described by nonlinear science. In my view, the reader’s main concerns must be the text as it stands and how to find a functional way to deal with it.

The second of my privileged scholars, Harriett Hawkins, continues and adds to Katherine Hayles’s work. In *Strange Attractors: Literature, culture and chaos theory*, Hawkins uses chaos theory to demonstrate how texts from widely different periods and genres can be shown to exhibit very similar structures:

to my mind anyway, chaos theory in effect negates all past and present taboos against treating together, as structurally comparable (rather than historically or categorically non-comparable), ancient and modern and popular and canonical works of varying genres that show the same pattern and may, arguably, reflect the same extra-textual reality. (47)

One of Hawkins’s expressed aims is to negotiate the difference between popular and canonical works, and she explores new ways to deal with “the strange attraction and creative interaction between chaos theory, popular modern fictions and classic works of English literature by Shakespeare and Milton” (5).

One of her comparisons explores “the cognate transitions from order to chaos in *Genesis* and *Paradise Lost*, or in *The Island of Doctor Moreau*, and in *Jurassic Park* when the dinosaurs are loosed from their

confines in a man-made Eden.”<sup>23</sup> In these four quite disparate works, Hawkins finds striking similarities on many different levels, and she notes that

like the first chapters of Genesis, *Paradise Lost* and *Jurassic Park* enact comparable processes through which an externally controlled and newly created environment (cosmos) of order and maximum security gives rise to forces of chaos that are in turn contained within the larger order of ‘external Providence’ - of Art, of Nature - of chaos theory itself. (35)

In all four of these works there is a god(like) figure attempting to control his creation externally, there are humans and other creatures interacting in ways that threaten the paradisaical order, and eventually the desired and intended control cannot be maintained but succumbs to chaos. Hawkins compares classic *Paradise Lost* to popular *Jurassic Park* and finds that

significantly, in incident as well as in its imagery and outline, Crichton’s best seller structurally replicates *Paradise Lost* which in turn replicates Genesis. For instance, in an introductory chapter pointedly entitled ‘Almost Paradise’, an innocent little girl gets bitten when she tries to play with an unusually intelligent and friendly reptile that can, astonishingly, walk upright on its hind legs. . . . [This] scene [is] strikingly comparable to Eve’s meeting with the friendly, talking serpent in *Paradise Lost*. (28)

In chaotic terms, Eve’s meeting with the serpent exemplifies how a ‘small cause’ can generate a large effect. This phenomenon, often referred to as ‘the butterfly effect’, Hawkins terms “‘the apple effect’ in *Paradise Lost*” (40).

In *Strange Attractors*, Hawkins compares literary works from different periods and genres, and shows how “chaos theory provides us with a useful way to distinguish between works with virtually identical outlines or character types but differing scales of complexity” (56). This means that chaos theory provides a technique to distinguish between a complex original text and a less complex one that copies some parts of the original. In this way individual texts of different complexity can be both compared

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<sup>23</sup> Hawkins, 6. [*The Island of Doctor Moreau* was written by H. G. Wells in 1897, and *Jurassic Park* by Michael Crichton, 1991.]

to each other and enjoyed in their own right (Hawkins 78). Chaos theory, Hawkins claims, does not see different texts as “intrinsicly at odds, mutually exclusive”; instead chaos theory allows us “to think of artistic and intellectual expressions as a dynamic continuum allowing for differing degrees of complexity, variation, recursions, unpredictabilities and irregularities” (75).

Another effect of chaos theory pointed out by Hawkins is that it helps to explain why certain works can excite and arouse interest after centuries. These works, Hawkins writes, are “the artistic equivalents of deterministic chaos, and as such evoke chaotic responses, contradictory interpretations, altogether different generic adaptations” (8). Speaking more generally, Hawkins concludes that

although this [Hawkins’s] book has absolutely no quarrel with the new historicism, or with any other form of historical or critical insight into literature, chaos theory does pose a challenge to the more linear (*exclusively* historical, ideological, and cultural) determinisms that have been theoretically imposed on art - just as it challenged comparably restrictive tendencies in science. (18)

Hawkins shows that chaotics acclaims textual complexity and nonlinearity and regards these characteristics not only as acceptable but even as necessary for meaning to emerge.

One similarity between Hawkins’s approach and mine is the historical range of literature chosen for analysis, where literary texts from widely different periods in time are examined and compared. However, Hawkins is slightly more selective in her choice of chaotics techniques and concentrates mainly on aspects of strange attractors in literature. My ambition is to let the literary text guide me as much as possible as to which chaotics mode of explanation can be used. Certainly the strange attractor is one of them but my aim is to give space to all the techniques and concepts explained in the six sketches of this chapter.

What I hope to contribute is to offer readings of literary texts as nonlinear patterns, thus extending the explorations done by previous work in the field of chaos theory and literature. I will attempt this by discussing

the reading process in relation to four literary works, with emphasis on the distribution of responsibilities between the narrator and the reader of the literary text.

As I shall elaborate in Chapter 4 (*Travesty*), I treat authors not as ‘creators’ of literary texts, but as designers. The nonlinear patterns of literary texts are too complex to be ‘created’ by any human. Instead I perceive the author (via the narrator) as the ‘designer’ of the potentially chaotic pattern of the literary work. The narrator sets the initial position for the text, by choosing some of the initial elements and their initial interrelation, and when these elements start to interact, chaos is imminent. The design made by the author constitutes the important ‘initial conditions’ of a process leading to the growth of the nonlinearity of the literary text. In designing the text, the narrator is only in partial control of its meaning. In my view, the ‘creation’ of meanings depends mainly on the iterative reading process made possible by the mutual contributions of the narrator and the reader. The process of re-reading increases the complexity of the text and brings new possibilities for meanings to occur and change.<sup>24</sup> Meanings emerge through self-organization from chaos.

Naturally, I am aware of a number of problems in attempting to suggest new approaches to basic concepts in a discipline such as literary studies. As I have already pointed out, chaos does not exist as an established ‘school’ of criticism, so every effort to use chaos theory in literary studies will involve choices of aspects and techniques, and often requires transformations of ideas from another discipline. Even the use of the word chaos poses a problem: in her introduction to *Chaos and Order: Complex Dynamics in Literature and Science*, a collection of essays featuring a variety of chaos approaches to literature, Hayles writes: “To many [scientists] the word [chaos] has now become so thoroughly deprofessionalized that its use is regarded as a signal that one is in the

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<sup>24</sup> Naturally, the text defined as what is printed on the pages is the same whatever reading is made and in itself quite neutral. The iterative reading process, the interface reader-text, breeds the development of patterns and meanings.

presence of a dilettante rather than an expert” (2). I agree with Hayles that there is a risk in using the word ‘chaos’, but, like her, I will keep it “because of the ambiguous meanings that inhere within it. . . . [and because] it serves as a crossroads, a juncture where various strata and trends within the culture come together” (2).

There are, I am sure, other limitations and problems that will also make themselves apparent in chaotic literary studies but, as Toril Moi has phrased it: “All discourses have their limitations, otherwise there would be no need for endless engineering of new discourse in history. But there is a need for that, because our positions change, because power structures change and that’s the process I see myself as partaking in.”<sup>25</sup> Like Moi, I see myself as partaking in the construction of new ways of understanding. In the case of chaos, uncertainty and unpredictability are parts of the complex system and cannot be explained away, but must be acknowledged. When we describe literary texts as nonlinear patterns, this discourse is also suggestive of certain ways of dealing with these texts. The logic of this discourse is my method in this dissertation.

### 1.3 The Novels

I do not claim that all the authors of the literary texts I have chosen for this study were familiar with chaos theory. But at least Diski and Hawkes live in a time when the predominant overall paradigm is very much influenced by the ideas of chaos theory, of which the specific theses are widely available in popular form, and therefore accessible to non-scientists. Depending on when we live we are all under the influence of, what Hayles has called the “prevailing cultural context” (*Chaos Bound* xi). Ways of thinking differ over time, and so do the thoughts that are

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<sup>25</sup> Moi’s statement is reported in “Discussion after Toril Moi’s Paper” in Zadworna-Fjellestad and Björk 48-9.

‘thinkable thoughts.’<sup>26</sup> Chaos theory is, no doubt, part of a paradigm, with a certain set of ‘thinkable thoughts’. Even if authors do not refer directly to chaos theory, they may be influenced by its thinking, or by the ‘thinkable thoughts’ of their time. However, neither authorial intention, nor the author as creator, is my focus here.

I will use Jenny Diski’s *Rainforest* to introduce my topic. Diski makes conscious and deliberate use of chaos theory in the novel, where one of the characters, Nick, the mathematician, is a chaos theorist, and the rainforest of the title is a pertinent illustration of something complex and chaotic. As Mo, the protagonist, sets out to ‘bring order’ to the rainforest, the reader is aware that complexity and chaos are also present in her life. My reading of the novel presents an overt use of chaotics in literature and concentrates on how Mo and the other characters relate, in their individual ways, to the chaos they encounter. In this context I comment only very briefly on the structure of the novel, as I am not convinced a deeper analysis is relevant to the overall aim of this dissertation.

Vladimir Nabokov’s *Transparent Things* features Hugh Person and his search through a chaotic landscape in an attempt to regain control of his life. His environment is very much a world of texts, where he often uses the chaotics technique of iteration to reach an inner meaning. His vision sometimes causes him problems and most often the reason is an abundance of impressions rather than a lack of them, as he frequently sees more than other people do. What he fails to see, though, are the strong hidden forces that are at play in the layered world he inhabits. Like Hugh, the reader needs chaotics techniques to unfold the very complex patterns encountered when reading the novel.

Control is one of the main themes in my reading of John Hawkes’s *Travesty*. The narrator/driver is working hard to maintain control of the car trip as well as of the narrative. As both are highly chaotic, this is not

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<sup>26</sup> Here the term ‘thinkable thoughts’ refers to ideas within the limits of the dominant culture, ideas that are not ruled out by the culture as non-thoughts.

an easy task. Total control of chaotic patterns is impossible for human beings and requires divine powers. The narrator's claims to divine powers are challenged as the narrative gets more and more complex, and the reader's ability to interpret is put to a severe test.

*Tristram Shandy*, obviously, is very different from the other literary works in this study. Written two centuries earlier, *Tristram* is 'more of a challenge' here than the three novels composed in the era of chaos theory. Assuredly, Sterne had no chance to hear about chaos theory, and I will not make him a chaologist. Still, as I will demonstrate in Chapter 5, Sterne depicts chaotic systems, and his imagination and creativity was of a kind not burdened by conventional limits. No doubt, he wrote to entertain his readers, and he did this by caricaturing the world around him. When he observed the world, his observations seem to go beyond what his (and our?) contemporaries could reach, and the picture he draws is certainly, as I hope to demonstrate, one of nonlinear chaos.

Reading *Tristram Shandy* is a baffling experience: the story is unpredictable, constantly moving in new and totally unexpected directions; there are elements that seem to belong together, but are situated in the text at great distances from each other; there are surprising graphic images, black pages and blank pages. The narrator gives the impression of struggling with a text that he cannot quite control and which he claims is writing itself. The pattern that comes across seems, at times, to be without structure. Even if some of the enigmas of the text are explained (sometimes the reader has to wait for some 50 pages or more), many of the mysterious and intriguing patterns remain unsolved. So, the text often seems to be totally random, but there is also order to be found in the midst of chaos, and this, as we have seen, is a chaotics description of chaos.

The literary texts in this study are chosen to illustrate some important aspects of chaos theory as a means of literary analysis. My overall claim, though, is more general: all complex texts can be examined successfully using the concepts and techniques of chaos theory. This is possible because all complex texts are potentially nonlinear, because they

all contain numerous elements and forces that, when functioning together, will increasingly develop into nonlinearity.



## 2 Attempts at Cultivating the Chaotic Garden: A Chaotics Reading of Jenny Diski, *Rainforest*

As an introduction to the application of chaotics to fiction, in this chapter I will present a reading of Jenny Diski's novel *Rainforest*. My treatment of the novel is a relatively elementary illustration of such an application rather than a fully developed literary analysis. I will concentrate mainly on the content of the novel, on its overt treatment of chaos and the characters' attitudes to chaos, and I will comment only very briefly on the structure.<sup>1</sup> My main concern is how Mo relates to the chaos she encounters, but I will also examine the other characters and their partly contrasting different ways of response.

I have chosen *Rainforest* as my first literary text in this study because Diski here makes conscious and explicit use of chaos and chaos theory. In the novel chaos theory is present on a theoretical level through the character of Nick, the mathematician who strives to capture chaos in mathematical formulae. Mo, the protagonist, learns about chaotics from Nick, and draws attention to the connection between chaotic nonlinear systems and her own experiences, especially those she has in the rainforest, where she loses her bearings in the midst of emotional turbulence.

Ironically, Nick and Mo, the two characters most well-informed about chaos theory, both demonstrate a clear inability to handle its practical manifestations in a positive, functional way. In spite of Mo's declaration that "maths was invented to avoid madness" and her assertion that while "[p]oets and philosophers go crazy, mathematicians stay sane,"

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<sup>1</sup> *Rainforest* has attracted little critical interest; the MLA bibliography does not offer a single entry. More complex applications of chaotics to literary texts, including analysis of content and structure, will follow in subsequent chapters.

both Mo and Nick lose their mental balance and go mad (17). Sanity depends on control in Mo's world, and a great part of the novel is devoted to Mo's ongoing struggle to find and gain control over new ordered patterns,<sup>2</sup> and to remain in control of those already established in her work as a scientist and in her social and emotional life.

As we have seen, before chaotics, chaos was regarded as disorder. To create or restore order had been the overall aim of science and other pursuits of western culture for many centuries. In situations where order did not exist control was not possible, but could be (re-)gained by organizing the separate elements into categories and by constructing a linear system. So order and system were privileged as a means of gaining control. It might be very difficult to find the system, but by being clever enough and industrious enough chaos would be overcome, and regularity and order would eventually be established. This is very much what Mo is trying to achieve.

Mo's resistance to chaos is made apparent through attitudes and techniques that are often pointedly contrary to the ideas favoured by chaotics. She rejects complexity and unpredictability, and in situations when she encounters chaotic patterns and situations she exercises a technique of fragmentation and reduction. Mo believes that she can detach herself from her object of study and become an independent observer. When, in spite of all her refusals to acknowledge it, complexity threatens to build up she even tries to suspend chaos by interrupting the iterative process leading to increasing nonlinearity.

Mo's refusal to acknowledge the full, uncontrollable complexity of the chaotic world around her, and her extraordinary need for control, make her attitude towards chaos explicitly negative, and she sees chaos as dangerous and best avoided. Mo's attitude in this respect is also a dominating value, for scientists as well as for others, of western culture where often, as James Gleick points out, "the practical interest is usually

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<sup>2</sup> I here use the word 'pattern' to signify any perceptibly coherent system.

one-sided: make the turbulence go away” (122). Chaotics challenges the older concept of chaos as disorder and claims that the patterns of chaos, or very complex systems, manifest both order and randomness; they are simultaneously orderly and subject to chance. These complex systems are impossible to control because of the unpredictability due to the ‘Butterfly Effect’; efforts to control or predict the development of a chaotic system usually fail because of the impossibility of establishing the precise initial conditions. This inability to control and predict nonlinearity is aptly illustrated by Mo’s failure to handle the chaos in her life.

Also in her choice of techniques for avoiding chaos and promoting order Mo’s attitude is representative of a bias in western culture. The process of bringing order to chaos often means first to subdivide the whole, as Alvin Toffler writes: “One of the most highly developed skills in contemporary Western civilization is dissection: the split-up of problems into their smallest possible components” (xi); and then dealing with some of the parts, thus reducing the complexity of the chaotic patterns into predictable, manageable linear patterns. As we will see, to achieve control, Mo uses techniques of fragmentation and reduction to identify and remove disturbing details in the patterns she encounters. Needless to say, using this technique allows only a part of the whole to be understood and controlled, because the full complexity of a nonlinear, chaotic pattern is still unpredictable.

Detachment from complex patterns is characteristic of Mo’s position. In her work as a scientist she perceives herself as a neutral observer, as a subject separated from the object she is examining, ordering and attempting to understand. In her personal life she shuns every serious involvement and every complication she cannot totally control. But chaos theory holds that a completely detached position is impossible. Central to the set of ideas we refer to as chaos theory is the ‘field concept’, according to which everything is interconnected, as Hayles explains:

Perhaps most essential to the field concept is the notion that things are *interconnected*. The most rigorous formulations of this idea are found in modern physics. In marked contrast to the atomistic Newtonian idea

of reality, in which physical objects are discrete and events are capable of occurring independently of one another and the observer, a field view of reality pictures objects, events, and observer as belonging inextricably to the same field; the disposition of each, in this view, is influenced—sometimes dramatically, sometimes subtly, but in every instance—by the disposition of the others. (*The Cosmic Web* 9-10)

Contrary to Mo's idea of total detachment, chaos favours a view of nonlinear systems where everything influences everything else.

Nonlinearity develops through feedback when connected elements interact with each other. In the previous chapter I illustrated how this chaos can come about, by referring to the iterated regular movement of, for instance, an egg-whisk.<sup>3</sup> Given enough iterations, the initially separate elements become well mixed (chaotic) in such a way that they cannot be easily separated again. If, on the other hand, the operation of the egg-whisk is interrupted at an early stage of the process, mixing is prevented and no chaos results. The development towards chaos is also suspended if some of the ingredients are removed after only some initial mixing and replaced by other elements. In this case the iterative process of mixing must start all over again. In *Rainforest* attempts at this kind of suspended iterative process are made by Mo and Joe, but this appears to be a very questionable technique for controlling chaos. It is as questionable as if someone tried to stop time by constantly pressing the reset button of an electronic clock.

The other characters in *Rainforest* also perform fragmentation and reduction, but in many ways these characters illustrate methods and techniques of handling chaos that contrast sharply with Mo's. They exhibit a range of attitudes and attach very different values to chaos. While Nick and Joe share Mo's basic mistrust of chaos, Marjorie, Liam and Leloh display a more open attitude.

As I hope to demonstrate through my readings of the novels of this study, an extremely restrictive view of chaos often leads to stasis or

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<sup>3</sup> See Chapter 1. Introduction: Iteration

reduced opportunities to influence developments, while a more open attitude to chaos can at best contribute to a more positive development and the growth of order and meaning.

## 2.1 Mo

When the novel begins Mo is obsessed with finding ordered patterns. Her whole life is reduced to a pattern, and she declares: "My life is a list of things to do" (82). Her present occupation is to "clean houses for a living," and for this she has a "regular schedule" (9). Mo has recently left the hospital, but still sees Dr Taylor on a weekly basis. "It's a regular part of my life," Mo says, "and I enjoy describing the pattern of my days to him" (129). Her cleaning assignments seem to consist more of restoring order than actual dusting and cleaning. Her favourite place to work is the Willing house "because of the order inherent in the place" (10). It is a house with a lot of space and very few objects—and no children. Mo disapproves of children because "for them, *things* are important not the spaces the things inhabit" (12). Doing her job, Mo gets certain "details out of the way," and "remove[s] disturbances . . ." (10, 11). She restores order by removing unwanted details. By removing these details she prevents chaos from developing. This is a strategy Mo also employs to 'tidy' other patterns in her life, making plans and establishing her ordered patterns. So important is order to her that she privileges 'space' to 'things'; form is more important to her than content. Mo remarks: "*How* I work is what is important to me. . . . *What* I do matters much less, and I've discovered that it's possible to approach cleaning houses with the same care, the same rigour, as I have used for other tasks, previous employment" (13).

Before her breakdown Mo works as a lecturer and a scientist—as an ecologist. In both of these capacities, making or finding order is one of the most prominent features. "Her room was a model of efficiency," and her system for organizing her responsibilities is very neatly worked out

(36). Her teaching is planned with the utmost care, her materials, her notes and Xeroxes, are always filed, marked and cross-referenced (35-6). As a research ecologist she is looking for system. She declares that she “like[s] to look at the world and find patterns. There are always patterns to be found. How else can one understand things?” (32). Patterns for Mo mean ‘ordered patterns’ (as opposed to disorder) that, once worked out, are easily distinguished and understood. For Mo, understanding leads to progress and control, as she explains to a colleague: “The progress you’re sneering at is trying to make the world clearer, finding regularities, so that succeeding generations can have more control. . . . We have to understand the way the system works so that we can control it” (69-70).

Mo works in the positivist tradition of modern western civilisation, believing that control over complex systems can be achieved by fragmentation and reduction. Following Carl von Linné and Charles Darwin, Mo creates order, metaphorically at least, by putting selected elements into separate boxes, and by fitting the details into an ordered pattern. By placing a number of grids in the rainforest, she will be able to single out details from the complex whole and to examine a small portion of it at a time. The complexity of the rainforest is thus to be reduced. The portion of the forest covered by the grids is then to be studied: details must be noted, facts must be gathered. The result of this fieldwork will be converted into figures, tables and calculations. Facts, represented by simple variables, will be converted into manageable mathematics. When the whole seems to be quite unmanageably complex, chaotic and threatening, neat mathematical formulae provide a way to reduce the chaotic system to an ordered system and to regain control. “I think,” says Mo,

that maths was invented to avoid madness; it’s what the scientists use to stop themselves going crazy - mostly it works. If you can represent infinity by the letter ‘n’ then you can deal with it. You don’t have to think about infinity itself, it’s just another variable to be considered. . . . ‘n’ means infinity, infinity means nothing. Poets and philosophers go crazy, mathematicians stay sane. (17)

The chaos of the rainforest, with its infinity of information, will be conquered through fragmentation and reduction by an observer from outside the forest. Mo the scientist sees herself as a neutral observer, not part of what she is studying. She regards her tables of figures, and her mathematical variables and formulae as objective tools, bringing about the ordered system she is convinced is present, because “[t]here are always patterns to be found” (32). Mo, intimidated by all the nonlinearity around her, is convinced she will be able to find ordered patterns and thus gain control and be able to contribute to (linear) progress. She is therefore really looking forward to going to the rainforest of Borneo and to getting started with her field work: “I can’t wait to get out into the field, I think I’ve had enough of university life for a while, it’s so predictable” (65).

Her work at the university is a dominant part of her life and it is indeed very orderly. She has strict routines and systems for saving her lecture notes from one year in order to be able to use them again the following year. Her relations with colleagues are smooth and uneventful. Liam, her colleague and friend, speaks about his wife and children and about his dissatisfaction with his work, but Mo is used to his cynicism and considers him quite predictable. His family is a force of great strength and should generate enough stability to prevent external forces from upsetting the stability of his life. However, sometimes Mo finds Liam rather tiresome, when he is talking about emotions and mystery. Mo is convinced that emotions can be understood and controlled by intellect. She accuses Liam of always “entertain[ing] himself with mystery . . .” (33). “These discussions were a regular part of their friendship,” regular and controllable (33).

Her relationship to her mother, Marjorie, is also regular and unproblematic. It represents a set pattern over which Mo has full control. Marjorie’s helpless dependence on Mo in practical matters, the mother’s need to be protected and helped by her daughter, is what Mo has lived with all her life: Mo’s strength and Marjorie’s weakness combine to stabilize an altogether predictable pattern. The mother’s inability to cope

brings mother and daughter together, and there are always things for Mo to help to set right. When the flowers in the garden die, they choose new ones “that pleased them both and fitted into the overall pattern of the garden” (52). Mo helps her mother to restore the garden and the pattern established by John, Mo’s father. Marjorie tries hard to keep it the way John would have liked it, to preserve the order he created. The order of the garden is maintained through weeding and careful introduction of new plants when needed, a process that echoes Mo’s technique of fending off chaos and promoting order: remove unwanted details and minimize the introduction of new ones. Marjorie, in her rather vague manner, is less rigid than Mo and had thought about some minor changes to the garden, to make it “a little less formal,” but “[s]he wasn’t sure” (52).

Apart from seeing her mother, Mo’s social life outside the university is limited to a few friends, relationships she can be sure will not upset the ordered intellectual system of her life, or provoke any unmanageable emotions that can jeopardize her system. She sees Nick—another scientist exploring complex systems and constructing mathematical formulae. Nick often eagerly informs Mo about his work on chaos, and for her “there’s joy in learning that there’s a formula for chaos, . . . but [unlike Mo] Nick wants to take those safe formulae and translate them back into meaning” (17). Mo seems to experience a threat from chaos, and holds the view that by going beyond the ostensibly stable point of mathematical manifestations of chaos, Nick is risking instability, and madness. “Nick’s excitement is contagious, but also disturbing” for Mo, who just listens and encourages (16). Their sex life is predictable, free from passion, excitement, and intensity. Mo’s relationship with Luke is very much the same, and there is “never any problem with intensity” (95). It is predictable, “[n]ever intense, always pleasant: their relationship, their sex” (75). Thus, Mo has acquired a certain amount of control over her professional and personal life by fragmenting and reducing the whole to make it manageable, and by imposing her own rigid patterns on all aspects of her life. By never allowing intense feelings to surface, Mo avoids

emotionally complex situations, and as we have seen already, she uses her intellectual system of control to check her emotions, and thus prevents chaos from developing.

Mo is convinced that desire can be controlled:

Long ago she had understood that desire was containable. Of course there had been things she had wanted, that urgent need for something – it did not matter what: a toy, a top mark in an exam, a particular dress, a play, a person. The wanting was always there, a welling need, for a second making you feel as if you would die if you did not have it. Now. But that passed, she had learned. If you did not get it, and held still for a time - and the time decreased as you got more practised at waiting - the urgency went away. It was possible to *wait out the wanting* and find that one could do without the desired object very well. (63, emphasis added)

Mo has developed and refined her technique of waiting out the wanting: She “only had to think a couple of stages ahead to know passion for what it was. A cloud, a mist that dissolved as soon as you entered it” (64). In Mo’s system of control, intellectual processes are given supremacy over passion; highly organized thinking rules her emotions and her desire. At times the world around her seems chaotic, but only temporarily. Disturbing elements, unpleasant thoughts and intimidating emotions, are eliminated, thus suspending the chaotic process. Instead a small number of manageable elements are retained and organized into ordered patterns. In this fashion Mo designs her own, orderly, manageable world, and she confidently claims that “[t]he world is the way you make it” (93).

When Mo is emotionally challenged she responds by applying the same technique that she uses in her research, or when helping her mother to weed the garden: she separates the whole into parts or sections, and reduces the complexity by removing the disturbing elements. Disturbing thoughts are weeded away, and with a firm “Pull yourself together,” she wards off the emotional intrusion (104). Her own desires are more problematic for her, but her technique of waiting out the wanting has usually helped her to restore her emotional equilibrium. Generally her system has worked well, but it is about to be exposed to more intimidating

attacks. Joe especially represents something new and very threatening.

From the beginning Joe disturbs Mo, and represents an external force threatening her intellectual stability, her control, as well as her emotional equilibrium. Intellectually he challenges her basic assumptions about the world, declaring that “[t]here is no system, only a multiplicity of life cycles; parts that remain separate, that never add up to a whole. . . . The ‘ecosystem’ is man’s vision of where he is and, in reality, no system at all” (55). Joe thus challenges the intellectual foundation of Mo’s thinking, the existence of a system, but his provocation to her emotional stability is even more of a problem.

Joe’s intensity is difficult for Mo to handle because it triggers a desire within her more powerful than anything she has met with before. So, it makes her angry when she realizes that “[f]or [a] split second . . . [s]he wanted him to want her” (62). On an intellectual level she has decided that she is not interested in him, but his suggestion “Let’s go to bed,” makes her spine go rigid (74). Again she employs her technique of ‘waiting out the wanting’: “You simply made a mental jump in time to the place you would end up” (64). She invokes the picture of Joe having left, of the front door having shut behind him, but this time her technique fails:

She heard *the front door shut*, looked around the empty room with its echoing silence and experienced a long, slow night of regret, while Joe stood beside her chair waiting for her decision.

‘Thank you,’ she said coldly. ‘But I’m not interested.’

Joe shrugged slightly. ‘OK. See you in college.’

She heard *the front door shut* and sat still in the empty room.

There was regret. She *had* wanted him. (74, the first two emphases added)

Mo fails to dissolve passion into mist by implementing her mental technique, and she regrets her rejection of Joe already before she has proclaimed it. Her technique of emotional control is undermined, and her protective system is severely weakened, making her more vulnerable to other attacks on her intellectual and emotional equilibrium. She can no

longer fend off unpleasant elements because a gap is opened between her intellect and her emotions. Undesirable elements start to flow in, and new chaotic, unpredictable patterns start to build up, replacing the old order she has built for herself. Many of her previously stable patterns start to disintegrate: Mo's picture of her own childhood and her position in her own family change drastically, and she has also to witness the break up of Liam's marriage.

In her own family, Mo has always regarded herself as the central force. A picture of her childhood was rooted in her mind as a crystallized structure,<sup>4</sup> stable and resistant to change. She has always perceived herself as competent and able to look after and protect her mother: "It was as if she [Mo] had always been grown-up" (42). Her father shared secrets with her: he and Mo had exclusive knowledge about his life with his other woman, Sheila. Mo was convinced she herself constituted the point of intersection where all the lines of their family structure converged. At her Christmas visit to her mother, this structure dissolved: her mother had known about Sheila, and had protected Mo. "[H]er mother talked about herself and John as if they were the central relationship, and she, Mo, hardly more than a bystander" (100). Mo can accept neither this change of delineation in her perspective, nor being deprived of her position as the central figure of the family. Once again she makes an attempt to use her mental, intellectual strength to compensate for her emotional weakness: "She would not permit either of those things, those *facts*, to stop her being what she was" (104). But Mo has lost some of her old ability to regain her emotional balance. She can no longer delete all the disturbing elements, no longer stop the chaotic process.

What Liam tells her is another troubling attack on Mo's world. The news that Liam has left Sophie, his wife, makes Mo very upset, and she

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<sup>4</sup> I use 'crystallized' to signify an ordered and stable but dead pattern, following Prigogine and Stengers: "The biological structure . . . combines order and activity. In contrast, an equilibrium state remains inert even though it may be structured, as, for example, with a crystal" (131).

accuses her colleague of being predictable. Liam, on the other hand, describes the development as mysteriously unpredictable: "Until it happened, I couldn't have done it, then I couldn't not do it" (108). Here, in my reading, Mo's insistence on predictability is a defence against approaching chaos and emotional turbulence. Mo's pretence that everything is still quite safe for her and that her world will remain stable and ordered, is a last futile attempt to remove yet another disturbing element from the pattern of her constructed world. In Mo's world, Liam's family represents a strong, stable factor. It is another of Mo's crystallized stable structures. Its sudden collapse would be not only an unpredictable development, it would be virtually impossible. She relies on his family to stay together forever as a part of her stable world.

In Mo's linear, ordered world the notion that a weak cause can have any significant impact on what happens must be rejected. A small (for Mo) cause, a 'disturbance' like Grace, the young female student, can never trigger a large effect. When Liam first tells Mo that he is leaving his wife to live with Grace, Mo cannot believe it will really happen. In this case Liam's family should be the stronger force, and the stronger cause, so the *status quo* will be the most likely outcome. As she will learn, the facts available to her are not enough for her to make an accurate prediction. Perhaps there are facts hidden from Mo, or even from Liam himself, or maybe the relative strength of the various factors changes over time? It is such a complex system, with so many elements, so many choices: there are different people, many possible acts, feelings, and other rational and irrational arguments for this course or that. Mo may have thought that all decisions are based on simple facts and logical reasoning. Each element can well be simple and easy to attach a value to, but the combination of the myriad possible elements in the web make the outcome totally chaotic and unpredictable. As we have seen, many simple forces combined can result in a chaotic pattern, and this relationship between cause and effect is called the 'Butterfly Effect'. Hayles writes: "[U]nless the starting conditions can be specified with *infinite precision*, chaotic

systems quickly become unpredictable” (*Chaos Bound* 14). The fact that people’s actions, minds and emotions are as unpredictable as the rainforest, where “[t]here was no regular pattern, only the irregular pattern of necessity,” is impossible for Mo to accept (135).

Mo’s world is really under attack, and in response she falls ill. Mo feels “tired and depressed” and a doctor diagnoses the cause of her illness as “[a] virus,” but “[i]t seemed that getting ill was the result of not being very well in the first place” (113-14). For some time people irritate her, and Mo feels how “[d]isgust simmered inside her” (112). She looks forward to going away to the rainforest, and to a chance at “[c]learing away . . . the emotional confusion that others were pouring all over her” (114).

In the forest Mo works according to her plan from her previous visit. “It was her job to observe the forest and analyse its parts; to understand the system” (27). Her method of reducing complexity and increasing control means breaking down the complex whole of the rainforest into selected manageable parts, each confined by one of her grids. The forest is to be domesticated, and its chaos cultivated. As Marjorie expresses it in a letter to Mo: “Your description of gridding and your visits to your plots in rotation made it sound a bit like gardening really” (151).

A garden is manipulated nature, and its pruned beauty has traditionally been preferred in the western world to wilder variants. Gleick writes: “At one time rain forests, deserts, bush, and badlands represented all that society was striving to subdue. If people wanted aesthetic satisfaction from vegetation, they looked at gardens” (117). The beauty of the garden is often synonymous with linearity and order. The beauty of a cognitive system is often attributed to the same selected and ordered properties. There is an obvious risk of oversimplifying, and of seeing a regularity one expects to see. When Galileo looked at a pendulum, James Gleick points out, he “saw the regularity because he already had a theory that predicted it” (40). Mo in a similar way is convinced of the existence

of “a balanced natural system,” and claims there is evidence to support it (61). Joe retorts: “[T]hat’s hardly surprising since the evidence is collected by people who are committed to an outcome before they start looking. . . . [H]uman beings need system, so naturally they find it wherever they happen to look” (61). Mo’s strong preference for ordered patterns and her employment of techniques mimicking gardening have already been noticed. She is totally committed to, and dependent on finding the system that she strongly believes can be found.

When Mo looks for system in the forest, she is positive she is doing so from an objective outside position, even when she is living in the forest. During her first visit she has already considered her detached position as observer:

She knew herself to be outside the order she intended to find. That was, of course, the only possible position for the observer. She had to be on the spot to collect the data that was touched by her only at the moment of recording. Her eyes and then her pen would note; sometimes her hands would physically remove the information from its surroundings for classifying and measuring. *Then*, at that time, she knew, she had created a disturbance in the natural behaviour of what she studied, but it was not an idea she took very seriously, or even thought about very much. (25-6)

Mo’s separation of observer and object is typical of her static mechanistic thinking. Opposed to this view is the ‘field concept’ that describes an important characteristic of nonlinear, chaotic systems, as Linda K Hughes and Michael Lund observe: “[A]ccording to the field concept everything (including the observer) is connected to everything else and parts cannot be teased out for classic linear analysis. . . .” (170). Mo, however, is set on precisely that kind of fragmentation and reduction, on ‘teasing out’ parts for linear analysis. This is her method, her technique of controlling her linear predictable world, and of staying sane. Nick had frightened her by telling her about chaos and about the “interaction between the looker and what he’s looking at” (116). Mo strongly rejects these ideas. “[A]s far as Mo was concerned, she was *in* the forest, *she* experienced *it*, and had no notion of the forest in her, experiencing her” (132). Mo is convinced

that her objective observations and detached methods will help her bring order to the chaos of the rainforest, and also restore her intellectual and emotional balance.

To Mo in the rainforest, it is “all making more and more sense, becoming a coherent pattern” (138). She studies her grids according to plan. Her technique of gaining and keeping control appears to be working again; also when sexual excitement threatens her emotional balance, and “she wanted [Derek] naked against her,” she manages to allow “the moment to pass” (142-43). Her technique is working, and it depends, as earlier, on the supremacy of her mind over her emotions. But the turbulence of her emotions has been set going, and chaos is building up, as she lies in her tent in the forest, with her hand resting

comfortably on her inner thigh. Her brain, like her body, had shut down for the night, and in the dense blackness, relaxed into a restful passivity, received external stimuli – the sounds of the forest, the feel of her hand on her thigh – as if from an immense distance, just ticking over, not analysing or naming anything it picked up. (154)

Her mind has ‘shut down for the night’ like the protective shield of a spaceship: she has opened herself to the full complexity of the forest. When her brain is not in full operation, she cannot exercise her technique and is defenceless. “Mo slept, having taken the forest into herself, and dreamed green dreams of herself and the forest intertwined, enmeshed, flowing into one another like impossible creatures with no boundaries, a new geometry of fluid form” (156). She has allowed shapes of chaos to replace the straight, clear vision of her usual ordered world. “An image of Joe, naked and muscular, lay, [as a foreboding,] on her eyelids” (157).

When Joe arrives and undresses her, she loses the last layers of protection and her patterns dissolve. Joe and Mo make love, laugh, sing and dance in the storm. “Mo felt that her bearings had shifted and that she floated in a no-man’s-land, away from herself” (165). Her new points of reference make her see a new alternative order in the complex pattern she has denied before: Liam, Marjorie, and her role in her family—all have to be reconsidered: there are new patterns to be discovered and accepted

(166). Mo is open and vulnerable. When Joe leaves her, joking about squares in the wrong place, Mo has nothing to protect her (169). Again she has to start to build her protection. Mo “pulled on her other practical, protective layers as she dressed” (169). She has been careless, in spite of an awareness that

[s]he survived the forest by knowing it, by testing and looking and breaking it down into separate compartments. It was never to be trusted. Once out of one’s control anything could happen. The correspondence between Joe and the forest was irresistible. Both destructive, both uncaring. (169)

Mo has to start working again, but “[h]er efficient schedule had been disrupted” (169). She is no longer “the objective, data-gathering scientist” (169-70). The turbulence of her emotions has demolished her old ordered patterns. “She had created a new forest out of her own turmoil; given it a face, a name, and a quality that matched not the reality of the forest, but the personal chaos that threatened to engulf her” (170). Mo felt “[t]he threat of chaos[, . . . but] had to continue as if everything were normal” (172). She tears up her grids, loses all bearings, and “the chaos that was Mo . . . shook with the terror of disintegration” (175). She “became a mass of disorganized matter,” when the ordered patterns she attempts to build are dissolved (175).

Home again from the rainforest Mo starts to restore the structure of her life. In a figurative sense too she is attempting to return from the rainforest to the garden: from nonlinear chaos to linear order. Her success, however, is not total: when her renewed attempts at suppressing her emotions start to function, they do so only when she is awake, because she carries chaos with her into her dreams, which are chaotically unpredictable, uncontrollable, and beyond her reductive technique. Dreams are fragmented and reordered in different ways. John Briggs and F. David Peat point to

the pioneering work of psychiatrist Montague Ullman and others, which indicates that even the structure of our dreams may be fractal. Researchers believe that the dream “story” contains repetitions of the dreamer’s central concerns. Reflections of these concerns can be found

in both the overall “story” and in its finer and finer detail. (110)

The fractal chaos of the rainforest and of Mo’s thoughts and emotions are also present in her dreams, as a reminder of her lack of control. In order to get rid of all this chaos she must find an effective way of clearing her mind of disturbing elements. We will examine her further strategy, but first we will have a look at some of the other characters and their techniques of dealing with chaos.

## 2.2 The Other Characters

Like Mo, the other major characters in *Rainforest* all relate to chaos in different ways. Within the conscious use of chaos (theory) in the novel, Nick, Leloh, Liam, Marjorie and Joe are designed to make discrete contributions to the image of chaos that is presented. They all perform some sort of fragmentation and reduction of the chaos they have to handle, thus illustrating that chaos can never be totally controlled because of its great complexity and its unpredictability. The character most clearly connected to chaos and chaos theory is Nick.

Nick is a scientist like Mo, and works directly with chaos theory. He is attempting to create a mathematical theory for chaos. He is very much involved in his work and often feverishly tells Mo about his progress. Mo is thrilled by the prospect of a theory for chaos, but finds his intensity problematic. Nick’s intensity in this respect is quite contrary to Mo’s calculated calm and is very intimidating to her. Furthermore, unlike Mo, Nick is not content with minimizing chaos, and when he attempts to go from the safety of mathematical formulae and “translate them back into meaning” he is “slipping into madness” (17, 117). His trained mind can perceive the beauty of the formula, but, like any other human brain, his is inadequate to grasp the full complexity of chaos. His mental voyage through chaos causes him to oscillate between sanity and madness.

Leloh, the local villager, differs very much from Nick, and he has a totally different outlook from that of the western scientists. To Leloh

necessity is what matters, and he concentrates on how to get food, and how to avoid dangers. He takes what he needs and does not reflect at all on the overall system. In his culture, practical considerations are more important than theoretical speculations, but “[i]t was necessary, he knew, to have a sense of the world one lived in and used, a feeling about it that was more than the names one spoke aloud to tell others that it was there” (23). Leloh knows how to live in his environment, or rather he intuitively knows how to act in various situations. This means he is consciously aware of only a part of the whole at each moment. When walking about in the rainforest he is aware of what dangers to look out for; when hunting he knows how to outwit his prey. He takes care of his tools, but does not worry about next year. Leloh knows what he has to concentrate on at the moment. The rest of the nonlinear pattern he puts into the background because although he is aware of it, he is not bothered by it. To him chaos is no problem, and he makes no direct attempts to avoid it.

Neither does Liam make any attempts to avoid chaos or achieve total control or understanding. On the contrary he seems to welcome chaos, and says that he would “like to think there’s a small pocket of resistance in the world that simply won’t be understood” (143). But even if he wants to retain some of that which cannot be understood, his method is not to ignore difficulties. He even warns Mo not to “dis-invent problems that are there in order to stay sensible” (33). Liam also is very much aware that his actions cause problems and suffering for both himself and others. When he opts to leave his family he does so fully aware that this act will cause anguish to others and to himself. Liam implements a technique of fragmentation and reduction, but for a different reason and in a slightly different form. He seems largely to disregard the patterns he is involved in, as he is marginalised by students and colleagues and *vice versa*. Talking about Grace, his new girl/woman, he exhibits an extreme form of fragmentation, saying that “[a]ll the desirable parts of her are separate; I want each, not all. And the parts never become a whole” (146). His disregard for patterns and connection is further emphasized by his

wish to become a monk. This wish does not only imply a secluded life, an extreme form of reduction but also an opportunity to concentrate on only a few chosen items, an attention similar to meditation. There is a quality of mysticism in Liam's exclusive attention to Grace's breasts; it is like the meditator's attention to his mantra. Seen as fragments upsetting a whole system, the impact of her breasts also illustrates the 'butterfly effect'. In short, Liam's attitude to chaos is a strange mixture of awareness of complexity, disregard for its patterns, and an excessive attention to its fragments. He starts processes by introducing new positive elements of his choice, and is prepared also to accept the negative consequences for others and for himself. Both Liam and Marjorie accept chaos as a force that brings life and possibilities.

Marjorie realizes that there are lots of nonlinear patterns around her; that there is chaos she can never hope to control. "She had a picture . . . of London as a vast network of individual lives, each crossing and recrossing others, but with no defined end, no final purpose, all getting on with their own necessities" (181). She never lets her chaotic environment bother her, but allows life to go on and helps herself to what it gives her. She happens to meet a woman who tells her about a job she can apply for. Marjorie applies for the job, and gets it, without thinking a lot about the randomness involved; she simply accepts what happens to her. She is frequently aware of the ordered patterns in the midst of chaos where most other people see only disorder: she can "perceive the patterns beneath the extraordinary disorder [of the playground] in the middle of infants' playtime" (179). She sees the ordered patterns of individual children interacting, and is not bothered by the seeming disorder of the whole. She has allowed things to happen to her before. When her husband was secretly seeing another woman, she had protected Mo, and let it go on, saying "why should I object to him being happy with someone else when it didn't affect us at all?" (99). She accepts chaos, and makes her choices, and in a rather passive way she lets life, with all its chaos, roll on, and occasionally something positive occurs that she can make use of.

Occasionally order emerges from the surrounding chaos. Marjorie makes no efforts to control the chaos around her, but she is alert to the good things that present themselves as a result of the ongoing chaotic process.

Joe cannot accept chaos. He experienced the chaos of war when he was in Vietnam as a photo-journalist. He was there as an observer, but feels that he had “personally participated in the destruction and death-making. You can’t *just* take photos in the middle of a jungle war” (73). His view of an observer is radically different to that of Mo. To him the observer and the observed are inseparable. He “went home a little crazed” (67). Joe has perceived very intense patterns he wants to forget, which makes him deny and try to escape all patterns, because he knows that, given time to develop, almost any system can go chaotic. His ideas of the world, as expressed in the mocking student paper he hands in to Mo, deny all patterns: “There is no nature, only Nature - an imaginary state of man’s own invention, a realm of concept and language. . . . There is no system, only a multiplicity of life cycles; parts that remain separate, that never add up to a whole. . . . The ‘ecosystem’ is man’s vision of where he is and, in reality, no system at all” (55). In his life he escapes all patterns by splitting them up and moving from one part to another: he moves from girl to girl, from place to place. By constantly breaking up patterns into fragments, and changing the fragments, he does what he can to stop chaos from developing. Like Mo he attempts to interrupt the iteration leading to chaos by constantly removing elements and introducing new ones.

In my view, this kind of interruption simultaneously takes place on a larger scale in the novel, where it disrupts the process of its structure and challenges the reader’s interpretive ability. In chaotic terms, self-similarity here creates an interesting parallel between different narrative elements, whereby Mo’s and Joe’s interruptive actions at a thematic level are mirrored at a structural level. I will illustrate very briefly how a complex usage of a central concept in the novel—the use of ‘rainforest’—creates a basic uncertainty and forces the reader to consider different kinds of signification.

The complexity of the rainforest makes it an ideal image of chaos. The rainforest consists of innumerable elements that are all linked to one another. There are many inanimate components in the forest and many living ones, both animals and plants. Plants depend on other plants and on animals. Animals feed on vegetation or on other animals. It is apparent how everything in the forest is interrelated, how each component depends on others. The forest is a grand complex pattern, impossible to control or understand completely, and impossible to predict in detail. As a (first-person) narrator Mo points out that she is “[n]o animist, [and that she has] never cluttered up the environment with *personality*” (76). This view is confirmed by the ‘anonymous’ second (third-person) narrator:<sup>5</sup> “To say that the forest was conscious of Mo would be inaccurate, since consciousness was not the nature of the forest” (27).

However, this line of thought is broken, and the reader’s attention is forced onto a different level of understanding. The definition of ‘rainforest’ as a complex nonlinear pattern is contrasted with a different definition. The rainforest is presented as a conscious living entity, sometimes almost omnipresent, all-embracing and often intimidating. Sometimes the forest is momentarily ‘aware’ of changes at a great distance. What we encounter here is not something small having a great effect and influence on processes far away (the butterfly effect). Instead, the narrator is signalling a different level of understanding of this central concept by treating the ‘rainforest’ not as a system but as a ‘person’ or as Mo’s lover (163).

The narrator uses expressions like “[t]he forest in her [Mo] knew better,” (51) or “[t]he part of the forest that was the new queen termite [in the Bornean rainforest] made itself known to Mo [in England] . . . ” (103). The reader is also told that “[t]he forest, in the car heading for London, and in Borneo, was alert to a further shift of balance in the organism that

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<sup>5</sup> In the rest of this chapter I will refer to the third-person narrator simply as ‘the narrator’.

was Mo” (103). The narrator further claims that the scientists “visited the forest without becoming part of it” (137), which is surprising since Mo is described as being part of the forest (and *vice versa*) also when she [Mo] is in London. These partly contradictory uses of ‘rainforest’ are surprising if regarded from the perspective of a single level, because, to repeat a statement by Paulson, they are “destructive of regularity or predictability on that level, [and] must be taken as a possible index of another level, another textual system with a new kind of coding.”<sup>6</sup>

My point here is that slight changes in the use of important concepts in the novel have effects similar to those of Joe’s constant changing of the elements of his life: in both cases the iterative processes leading to chaos are suspended. After a stop, the process has to start again. Eventually, all systems are likely to go chaotic anyway, but these interruptions temporarily postpone that. Chaos is slightly delayed, and with it a process possibly resulting in new complex meaning. In the following chapters I will demonstrate how consistent novel structures contribute to the nonlinear patterns of a literary text, out of which order and meaning can emerge.

In my reading of *Rainforest* I have concentrated on how Mo and the other characters relate to chaos. At the end of the novel, Mo has in many ways experienced the chaos of which Nick has given her the theory. She knows about the complexity, the unpredictability, and about the enormous difficulties faced in the attempt to control chaos, but she neither acknowledges chaos nor accepts it. Instead, she attempts to reduce the complexity around her by removing disturbing elements. In this way, Mo tries, like Joe, to suspend chaos and defensively to construct her own patterns. Mo declares that “[t]he world is the way you make it” (93). Seen as a symbolic allusion to reading strategy, Mo’s method of treating chaos would suggest a reader largely disregarding the text at hand, entirely occupied in creating his or her own private meaning.

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<sup>6</sup> Previously quoted in Chapter 1, Self-organization (p. 29).

Mo's refined technique carries the reduction of elements further and further. While Joe attempts to escape chaos by denying patterns and concentrating on their elements, Mo's method of controlling chaos, carried to its extreme, removes all elements and leaves just space (pattern). The method silently raises the question: What is a life? Mo's life is without passion and intensity; her life is a tidy, empty pattern. Mo's final line aptly summarizes both her flat and her life: "I like it, my space. An empty space. Tidy and empty" (190).

In *Rainforest* we have encountered a conscious and explicit use of chaos theory. Some characters in the novel are opposed to chaos and therefore counteract its development by attempting to suspend it, while other characters passively accept chaos. These attitudes are contrasted in the other novels of this study where chaos theory is not explicitly mentioned, but where consistent descriptions of nonlinear patterns are frequent, as are accounts of how this nonlinearity is built up. As we shall see, the narrative patterns are also full of links between different narrative levels. We will also meet characters who are seen to employ consistent chaotic techniques in their attempts not to avoid chaos but to come to terms with it, thus enabling processes of self-organization through which new signification and new meaning can emerge.



### 3 Unfolding *Transparent Things*

In this chapter I will demonstrate an application of chaos theory to a complex literary text, Vladimir Nabokov's *Transparent Things*, and attempt a deeper analysis than in the previous chapter. In Nabokov's novel chaos theory is not explicitly mentioned as it is in *Rainforest*, but chaos pervades the depiction of the nonlinear patterns of the novel and the difficulties encountered by Hugh and the narrator when they try to control the complexity they encounter. My chaotics reading acknowledges the novel as a nonlinear system which is simultaneously deterministic and unpredictable.<sup>1</sup>

The complex structure of *Transparent Things* is manifested through its self-similarity, its stratified levels of perception, and its ongoing process of change. As we shall see, many patterns and images are repeated in the novel. In chaotics this is recognized as self-similarity, repetition of patterns across scale. It is important to notice that these repeated patterns share a general form, but they are never identical. In Jonathan Raban's reading of the novel, "Person chases Armande in Switzerland, Nabokov chases Person in his book. Round and round they go, *continuous as a frieze round an urn*" (75, emphasis added). As I will soon demonstrate, the idea of exact repetition is a misconception Raban shares with Hugh. In the novel, chaotic self-similarity is one indication of the novel's nonlinearity. Another factor of particular interest is the novel's presentation of its two disparate perspectives, illustrating the play between order and chaos and revealing a complex universe that is layered.

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<sup>1</sup> As explained in my introduction, nonlinear systems are characterized as being simultaneously deterministic and unpredictable. They are impossible to predict in detail because of 'sensitive dependence on initial conditions', or the 'Butterfly Effect'. At the same time nonlinear systems are also deterministic, because what is at first seen as random is often recognized as pseudo-random because there exist strong governing forces——'strange attractors'. Order can exist in the midst of chaos.

However, the world viewed by Hugh's spectral companions consists of layers only partly perceived by Hugh.

The complex structure of *Transparent Things* is also manifested through its emphasis on an ongoing iterative process where the (sub)structures depicted are not static but constantly changing. As we shall see, the environments Hugh revisits are all changing and so are the people inhabiting them. As Gleick points out, chaos is often seen as "a science of process rather than state, of becoming rather than being" (5). What Gleick means is that a complex system cannot be depicted as one simple structure, or in one simple picture. Neither can a complex chaotic system be controlled in great detail, but parts of it may be revealed and influenced by using certain techniques. I will point to some of the techniques favoured by chaos and demonstrated in *Transparent Things*, such as fragmentation and re-iteration—techniques towards understanding at least parts of complex patterns.

Understanding a complex system is like trying to understand the complex motion of a waterfall: in order to understand it you can freeze its motion by taking a series of snapshots and then iterate these 'frozen moments' in an attempt to reduce its complexity and deal with a manageable selection of details. As quoted in the previous chapter, Alvin Toffler comments on this technique of reduction, and claims that, in contemporary Western civilization, dissection is frequently employed when dealing with problems (Toffler, xi). This technique of fragmentation is used in the novel both by the narrator and by the main character, Hugh Person. In their efforts to manage nonlinearity they parallel the characters of *Rainforest*, but unlike Mo and Joe, Hugh Person and the narrator of *Transparent Things* do not attempt to arrest nonlinear development. Instead they attempt to take the next step, which is to combine the chosen elements and thus contribute to the build-up of new complex patterns.

Like Mo in *Rainforest* Hugh Person uses fragmentation and selection of elements to reduce the complex whole and concentrate on a few interesting elements. But both Hugh's technique and his motive are

considerably different from those of Mo. While Mo's overall aim is to cut out and remove elements and to attempt to force what is left into an ordered pattern, Hugh is far less restricted. Mo tries to rid herself of unpleasant experiences and, therefore, she deletes disturbing memories from the past and blocks new unpleasant experiences. Hugh's relationship to the past is different. Bob Grossmith argues that "*Transparent Things* is constructed around the theme of pilgrimages into the past," and that the main interest of Hugh Person is to "rid himself of the past" (18). As should be evident from this chapter I do not agree with this view. To me Hugh's interest is the opposite: to get a firm grip on his past, to understand and control it. Like Mo, Hugh concentrates on a few elements, but after making these choices he allows the chaotic process to continue. He iterates his chosen elements, hoping to achieve a new order he can understand. Paul S. Bruss writes that "Hugh's editorial relationship to Armande's life is obviously inferior to Mr. R's authorial relationship to the texts he creates. . . ." (298), but, as my chaotic analysis will demonstrate, the roles of Hugh and Mr. R. are far more similar than is apparent at first. Both have to a large extent to be satisfied with roles of editing because demonstrably neither of them has full control of the nonlinearity around him. This negotiable dissimilarity exemplifies Hawkins's claim that a chaotic analysis opens up a comparison of seemingly disparate patterns without necessarily having to grade them. In spite of obvious differences, ostensibly incompatible patterns can be shown to have a lot in common. In *Transparent Things*, we can see how Hugh edits the elements linked with his previous life rather than attempting to create a new pattern for his future life; and how Mr. R., like an editor, attempts to rule the development of Hugh's life by giving hints and suggestions rather than authoring and creating it. Both Hugh and Mr. R. initiate an iterative process of feedback that forms a complex pattern of cause and effect. Neither of them can control this process completely, but they can edit the complex pattern that grows in the text of the novel.

In my reading of *Transparent Things* I will not use bibliographical

material because I find it unsuitable for my approach to the novel. However, it is interesting to note that critical analyses of *Transparent Things* frequently draw on Nabokov's biography when annotating the work and commenting on the 'mysteries' of the novel such as strange references, interesting repetitions, anagrams and other types of wordplay. In Rosenblum's view, "It is no surprise, then, that much of the best writing on Nabokov takes the form of annotation, that most self-effacing and demanding of literary tasks" (221). Barton Johnson points out that, "Nabokov's use of alphabetic signs as emblematic motifs of the theme of literary creativity is to be found in various dimensions throughout his works" (399). Johnson's comments on the identity of the mysterious Mr. R., the narrator of *Transparent Things* are of special interest. Johnson writes that "the eminent author's name, the capital letter 'R,' is a mirror-image reversal of the Russian letter 'Я,' signifying the first person singular personal pronoun 'I.' Thus, Mr. R., the writer-narrator who is creator of the people and events of *Transparent Things*, is an ego-alphabetic surrogate of Vladimir Nabokov. . . ." (Barton Johnson, 407). As I just pointed out, I do not totally agree with the view of the writer-narrator as 'creator'. In this and the following chapters I will explore the role of the writer-narrator in terms of editing of text, initiation of processes and the guiding of the reader towards certain choices. I find *Transparent Things* very useful in this context and I agree with Brian Boyd, who writes that, "while the story will not be for everyone it is a masterpiece" (126).

This chapter has four sections, starting with an exploration of the actions of Hugh Person and his attempts at (re-)gaining control of his life. The second part deals with the world presented in the novel, while the third examines techniques and problems in relation to the narrator. The fourth section is devoted to the narrative structure of the novel. Let us begin with Hugh.

### 3.1 Hugh Person's Pursuit

Hugh Person returns to Switzerland. His previous three visits to the country have included events of the greatest importance to him, and provided him with starting-points for new periods of his life. On the first visit his father dies, and he has to start taking full responsibility for his life. On the second he meets Armande, who is to be his wife, but also his victim. Later on, the confusion of their marriage culminates in Hugh murdering Armande in his sleep. Why does he strangle the wife he loves? What circumstances lead to this terrible crime? His eight years in prison and at mental hospitals have not given him the answers he desires, only questions and chaos. Now he wants to find some answers to what happened, and thus control the chaos. He wants to acquire some kind of ordered pattern for his life, to be able to gain control over it.

To do this Hugh returns to his old starting-points, intending to duplicate the path his life once followed. He wants to re-iterate previous events of his life. So, he revisits places, returns to the same hotels and to the same rooms. He walks the same streets, and climbs the same mountain paths. "The first stage of his revisitation . . . consisted of a walk through Witt to a cluster of chalets on a slope above it. . . . He recognized the fountain, and the bank, and the church, and the chestnut tree, and the café" (89). "He passed several times by the old fountain . . ." (48). He also tries to find the people he once met, starting at once by asking "if old Kronig [a former employee of the Ascot Hotel] was still around" (9). He will attempt to combine these fragments of his past life in order to re-store the old pattern.

Hugh's strategy to gain control over the large-scale pattern of the previous periods of his life is to combine small-scale fragments, often memorized as visual form, as pattern. To make himself recall a hotel room number he exercises "some small visual jog": "He saw a very black 313 on a very white door and recalled instantly how he had told Armande [that] [m]nemonically it should be imagined as three little figures in profile, a prisoner passing by with one guard in front of him and another

behind" (98). The small-scale details that he can remember he will iterate in order to re-store the large pattern.

His method of iteration is reminiscent of his practice as an editor when reading manuscripts: "Hugh liked to read a set of proofs twice, once for the defects of the type and once for the virtues of the text. It worked better, he believed, if the eye check came first and the mind's pleasure next" (77). His method is first to check the details, then attempt to understand the whole. As an editor he is not creating anything completely new. He has a "task of healing" (28). As with Mrs Flankard's manuscript, he is editing and rewriting: "The rewritten bits, consisting of a few pages here and there, were supposed to bridge the black bleeding gaps of generously deleted matter between the retained chapters" (28). So, he is correcting, mending and filling gaps in faulty patterns, to make them more comprehensible. Now he edits his life as he would have edited a novel manuscript. He re-reads, re-lives old periods of his life, rather than creating something new. As he once edited his father's bad French, he now corrects the pattern of his life to make it more intelligible.

Hugh's method of curbing the chaos of his world proves far more problematic than he has anticipated. One reason is that his perceptions are not always dependable. He experiences both auditory and visual problems. In the lobby of the Ascot Hotel in Witt he mishears "Majestic in Chur" as "Fantastic in Blur" (9-10). He also often sees persons or things not present. Often his perceptions are manipulated, as we will see later.

One of the principal causes of Hugh's inadequate control is that he underestimates the randomness and unpredictability ruling him and his life. The patterns he is involved in are far more complex than he assumes, for their chaos fuses ordered and disordered sections. When he tries to re-live earlier situations, he finds that he is unable to re-create them exactly. As he walks around in search of recollections, he realizes that many details have been changed or exchanged and the pattern they form is now very different from what it once was:

A new road had been built and new houses had grown, crowding out the meagre landmarks he remembered or thought he remembered. . . .

Hugh's memory had bunched into one path the several wood trails and logging roads that led to the first difficult stage of the ascent – namely, a jumble of boulders and a jungle of rhododendrons, through which one struck upward to reach the cable car. No wonder he soon lost his way.

His memory, in the meantime, kept following its private path.  
(89-92)

So the earlier pattern cannot be repeated exactly. His attempts at control fail because he can never achieve an exact repetition of the previous situations. Here he is confronted by a general problem, the unpredictability of 'the Butterfly Effect', or "sensitive dependence on initial conditions" (8, 23). The impossibility of controlling completely the initial conditions makes it impossible to predict the development of a very complex system.

A conspicuous illustration of this complexity is "the Person Stroke" (61): Hugh had "invented a shot [at tennis, that no one else] could either make or take" (60-1). He had developed it during sleepless nights. Hugh's "method . . . was repeating in mind with metronomic precision the successive strokes of" a tennis game (60). He re-iterates images of details in his mind, to perfect the stroke. However, the stroke is rather erratic and frequently ineffective,

since it could not deal with low, awkward balls, [and it] required an ideally balanced stance (not easy to assume in a hurry). . . . but when controlled accurately, the stroke reverberated with a harsh crack throughout one's forearm and whizzed off in a strongly controlled, very straight skim to a point near the baseline. . . . Person believed that, with tremendous, all-consuming practice, the shot could be made not to bounce at all but roll with lightning speed along the surface of the court.  
(61)

To master 'The Person Stroke' the player has to control the initial conditions and repeat a very complex pattern of details. Hugh has spent a lot of time perfecting each small detail of the execution of the stroke, and he is the player closest to perfection. Even so, the pattern to be repeated is so complex that he is only completely successful with "one or two shots in a desultory game" (62).

The complexity of Hugh's tennis stroke is exceeded by that of his life, which has never been totally under his control, either when he is awake or asleep. As a boy Hugh slides between worlds when he walks in his sleep and wakes up in odd places (25-6). Ostensibly he leaves the familiar patterns of his ordinary world and falls into some uncontrollable gaps in consciousness, which means that temporarily he loses all control of his life. Like Mo's dreams in the rainforest, Hugh's boyhood somnambulism epitomizes a totally unpredictable chaotic pattern, detached from cerebral control. When he tries to regain control and check his sleepwalking, he fails. Then suddenly his somnambulism expires of itself and his nightly walks cease. For no obvious reason, a kind of order appears spontaneously out of disorder, as if by self-organization from chaos. Later on, sleeping again causes him trouble, but so does being awake.

Another of Hugh's dilemmas is that frequently he cannot take important decisions himself but has to adapt to those made by others. This makes the pattern of his life very unpredictable. In his job as an editor, he is often obliged to refer to Phil, his boss: "I shall certainly tell Phil how strongly you [Mr R.] feel about the points he has raised" (74). Nor in his private life is he granted supreme authority. His decision to go to Witt is not altogether his own but is influenced by forces hidden from him. "Something else had made him revisit dreary drab Witt" (97). We will later consider this mysterious ruling force.

Hugh's relationship to language is also a predicament for him. He works professionally with language as a skilled editor, but he is a mender rather than a creator. As an editor he mends and clarifies patterns, erases and fills gaps. He successfully edits other people's texts, but has frequent problems in using language to produce his own texts, or to express his own ideas. When he uses his professional skills on his own life, the same faulty procedure is repeated, and his premeditated efforts to create usually fail. When he attempts

to express his love [for Armande, he] did not know where to look for words that would convince her, that would touch her, that would bring

bright tears to her dark eyes! Per contra, *something said by chance*, not planning the pang and the poetry, some trivial phrase, would prompt suddenly a hysterically happy response. . . . *Conscious attempts failed.*" (66, emphases added)

Hugh, the editor, can only express his love by allowing randomness to play, and by being prepared to adapt himself when the right words at the right moment pop up 'by chance'. He has to be content with a role similar to the one adopted by Marjorie, Mo's mother in *Rainforest*. This role is not to create or control, but to 'edit' by letting chaos develop, and by being prepared to seize whatever good emerges. In other words, the editing here consists of acknowledging nonlinearity, of recognizing the beneficial elements that are randomly created by the forces involved in the operation, and of being prepared to capture these elements at the right moment.<sup>2</sup> Hugh's communicative inadequacy depends largely on the impossibility of predicting the outcome of a chaotic pattern and of the relationship between the cause (his statements) and their effect on Armande. On the other hand, Armande is a very unpredictable girl.

### 3.2 The Unpredictable World of *Transparent Things*

The world of the novel is an unpredictable and remarkable one. Armande is the image of this unpredictability. She embodies chaos—randomness and order together—and presents a profile that sometimes is very stable, sometimes totally inconsistent. "She liked to give carefully planned parties, [and] every party and topic remained for ever preserved in the humming frost of her tidy mind. She visualized those parties in retrospect as stars on the veil of the undulating past . . ." (67). Armande reminds us of Mo in *Rainforest*, as both characters seem to prefer pattern to content, the 'how' to the 'what'. To Armande life is largely surface. It forms

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<sup>2</sup> This, as I will argue, is also to a significant extent the role of the reader of literary texts.

chaotic patterns, as illustrated by Armande's TV habits: "her likes and dislikes in these matters lacked all logic, she might watch one or two programs with passionate regularity or on the contrary not touch the set for a week . . ." (75). Thus, Armande incarnates unpredictability, and her preference for surface, or pattern, is also evident in their sex life: "Armande decreed they regularly make love around teatime, in the living room, as upon an imaginary stage, to the steady accompaniment of casual small talk, with both performers decently clothed, he wearing his best business suit and a polka-dotted tie, she a smart black dress closed at the throat" (69).

Hugh is made to take on Armande as he will later take on the task of getting control over his life. The methods described for these two enterprises are similar, as both Armande and the pattern of his life are chaotic and unpredictable. At first Hugh follows Armande's path up mountain sides, sometimes seeing her, sometimes not. "The trail consisted of very steep ups and very slippery downs, and gigantic ups again, along the side of the next mountain, and was full of old ruts, rocks, and roots. He labored, hot, wretched Hugh, behind Armande's blond bun . . ." (54). The image of Armande is elusive, and Hugh fails really to capture it. In order better to understand Armande, he needs a fresh path to follow. A different starting-point is provided by Armande's mother, when she shows Hugh the photos in the family albums, where each picture of Armande recaptures a moment of her life. These fragments give Hugh a chance to follow the path of her development, from her early childhood and on, and to clarify his image of Armande by employing his editorial technique. To re-construct the pattern of her life, Hugh, the editor, has to put the fragmented moments together, fill the gaps in between, and create a consistent time sequence.

Hugh normally experiences horizontal quotidian time, with events taking place one after another. Events clearly separate in time are situated far from each other on the horizontal line. In the world of the novel there also exists an alternative vertical time, linked to a different kind of space,

with 'transparent' events stacked on each other, usually with the last item on top. In this space events separate in time are perceived as simultaneous. Both representations of time, horizontal and vertical, contain two zones: the past and the present, but "the future has no such reality" (7).<sup>3</sup> The past and the present exist separately when horizontally represented, but simultaneously when they are vertically represented, while "the future is but a figure of speech, a specter of thought" (7). Time develops in one way only, along the horizontal line, "in the 'now' direction" (13), and it cannot go backwards.<sup>4</sup> To re-examine something, one first has to jump back, then start again moving *with* time: "Going back a number of seasons . . . and then picking up the thing's history again in the 'now' direction . . ." (13). The 'history' is read in the only direction possible, from early events towards the 'now'. This sequential reading renders a pattern of meaning. If the pattern to be examined is very complex,<sup>5</sup> this process of 'jumping back' and 'reading in the "now" direction' has to be repeated, iterated. For each sequence of iteration the pattern is modified, the complexity is increased, and the chaos builds up.

The world of the novel is described as layered, a fact of which the characters are generally oblivious. When Hugh finds a pencil falling out of a drawer, he is not conscious of more than its top time-layer. The narrator, though, has a "deeper" perception and realizes that ten years ago the pencil belonged to a carpenter. "Now comes the act of attention," the

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<sup>3</sup> The past and the present are 'real' to us because we can *know* (collect verifiable facts) about them, but about the future we can only *guess* (make uncertain predictions).

<sup>4</sup> Events along the horizontal time line are 'stored' sequentially, in the same way as recorded sounds on a tape. If you want to re-examine a recorded sequence, you first have to rewind the tape ('jump back').

<sup>5</sup> Most often the patterns are very complex. As I pointed out in the introduction, chaotic, nonlinear patterns are far more common than regular, linear ones.

narrator exclaims (12). Any object in this world, “man-made” or “natural” (7), has a history that consists of layer upon layer, each representing one of the consecutive time periods that the object has passed through:

When *we* concentrate on a material object, whatever its situation, the very act of attention may lead to our involuntary sinking into the history of that object. Novices must learn to skim over matter if they want matter to stay at the exact level of the moment. Transparent things, through which the past shines! (7)

The ‘transparent’ layers contain everything causing, or leading to, the present situation; everything is stored below the thin top layer of the ‘now’:

A thin veneer of immediate reality is spread over natural and artificial matter, and whoever wishes to remain in the now, with the now, on the now, should please not break its tension film. Otherwise the inexperienced miracle-worker will find himself no longer walking on water but descending upright among staring fish. (7-8)

The transparency of the vertical layers is apparent only to the experienced eye of the ‘miracle worker’. The more inexperienced eye perceives events placed along a horizontal line, with one event following another,<sup>6</sup> while the ‘miracle worker’ runs the risk of sinking down through the layers of history and time, in the same way that you can sink in water. Time becomes a vertical dimension. Thus, within the space-time continuum of the world of the novel, time is given a spatial quality. The space-time we encounter is a transparent four-dimensional space, in which all four dimensions are of the same spatial kind. It is a chaotic and fractal space, very different from the quotidian world that Hugh can experience.<sup>7</sup> Let us

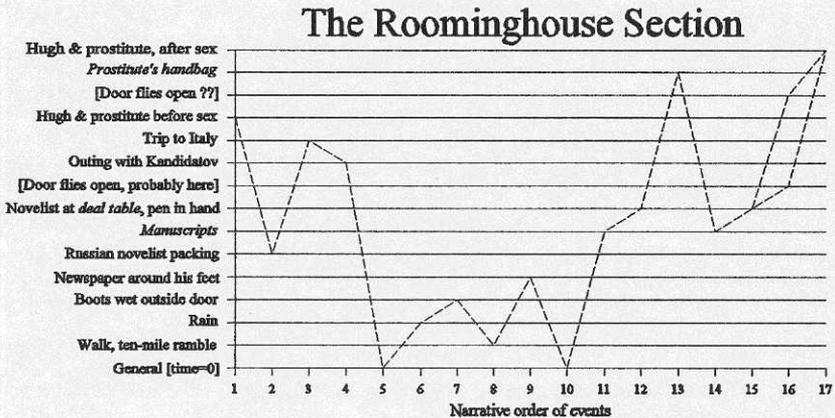
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<sup>6</sup> Naturally, events without any particular link to the viewer that took place a long time ago, and are therefore placed far away on the horizontal time-line, will be outside the field of vision.

<sup>7</sup> When I say that the space-time here is four-dimensional, this is a simplification. I have claimed that the world of the novel is chaotic, fractal. To express fractal dimensions integers like 3 or 4 are not enough, as the true number is somewhere in between. For example, the dimension of a fractal Koch curve (it looks a bit like a snowflake) is between that of a line and an area, between 1 and 2; it is

examine the function of this fractal space more closely.

When Hugh is brought by the prostitute to an old roominghouse, the narrator shuffles this incident with episodes that occurred in that room ninety-two years earlier (22-3): the place is the same, and three spatial dimensions are identical, but time is made a fourth spatial dimension. Two separate series of events are integrated into two simultaneous ones. As we have seen before, a combination of two forces rapidly increases complexity and opens up for nonlinearity, chaos. In this case the two forces are seen to have elements in common: a few of the objects are the same, the frock coat, the deal table; and one of the objects, the prostitute's handbag, is specifically mentioned as transparent. In the diagram below (Fig. 1) I have listed some of the elements of this section, as depicted by the narrator, layered from early (bottom) to late (top). For the sake of clarity the pattern is simplified. The curve represents the narrative's oscillation between the layers:



As can be seen from the diagram, the roominghouse section starts in one

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1.2618. (See Gleick, 102, and illustration after p. 114) In the case we are examining, time becomes a vertical dimension. As there is already a spatial vertical dimension, the vertical time dimension does not add one to the three spatial dimensions already there, neither is it lost altogether. The true dimension therefore must be more than three and less than four, that is to say somewhere between three and four:  $3 < x < 4$ .

of the late (top) layers with Hugh and the prostitute in the room before having sex, and ends a few layers above after the act. After the first 'event', the narrative 'dives' down to a layer about ninety years earlier, to a Russian novelist packing his things to go on to Italy. Movements between the two main time-layers are indicated through zooming in objects, which function as bridges. As the Russian novelist sits down at the *deal table*, the transparent *handbag*, at a much higher layer, is zoomed in on, and "there shows through that bag, as it were, the first page of the *Faust*" *manuscript* (23). Of particular interest in this section is the moment when "the door flies open and closes again" (event 16). It is impossible to establish to which layer this event belongs; does this occur when Hugh is in the room or when the Russian novelist sits at the *deal-table*? This uncertainty causes a bifurcation in the narrative line; there are two alternative routes from 15 to 17. This bifurcation breaks the single narrative path into two, and marks the onset of a more turbulent and fractal development. Hugh and the girl are in the room, but all they can experience are the quotidian three spatial dimensions and time as a separate entity. They fail to perceive the fractal dimensions, as neither can visualize the transparency or the layers. Had they been aware of what had happened previously in this very room, they would probably have perceived it as a series of events along a horizontal line. How the reader can handle this complexity I will illustrate later, but first let us examine four situations where characters in the novel get brief glimpses of the transparent vertical layers.

In the first situation Hugh arrives at the Ascot Hotel and believes he sees Armande at the reception desk, but his eyes deceive him. However, his eyesight is not totally to blame. His late wife constantly enters his thoughts: Armande's "image was stamped on the eye of his mind and shone through the show at various levels, sometimes upside down, sometimes on the teasing marge of his field of vision . . ." (35). When he talks to the reception girl, she also reminds him of Armande, as the other girl talks "with his late wife's habitual intonation" (10). Hugh's memory

and imagination create a dominant filter of extra reality superimposed on his own faulty perception. The image he perceives is distorted for a short period of time, then his perception is restored. When he actually sees her “*en face*,” the ‘film’ breaks, and he realizes she “did not resemble Armande one bit” (10). On another occasion he observes a lady “comically resembling [his] late aunt Melissa” at a café table (49). One of Hugh’s old memories alters his focus, zooms to his aunt: “She was a dear soul, with five cats, living in a toy house, at the end of a birch avenue, in the quietest part of—” (49). Thinking about his aunt, he is lost to the world around him. Some random noise shatters this image, and brings him to realize it is a different old lady sitting there. His quick changes of focus reminds us of a train abruptly changing to a crossing track—and back again.

The third example of characters experiencing transparent vertical layers concerns Julia. When she is having her brief affair with Hugh in his bachelor’s flat, she is reminded of an earlier encounter with “one of her best young males” in the same flat (39):

She had the good taste to say nothing, but the image of that youth, whose death in a remote war had affected her greatly, kept coming out of the bathroom or fussing with things in the fridge, and interfering so oddly with the small business in hand that she refused to be unzipped and bedded. . . . She noticed that the closet mirror as seen from the bed reflected exactly the same still-life arrangement, *oranges* in a wooden bowl. (39, emphasis added)

Julia is bothered by a strong memory charged with emotion, but what appears to be the triggering impulse is an object, or rather a colour: she “located the source of the vision in the folds of her bright things thrown over the back of a chair” (38-9). She spots her *orange* blouse. Incidentally, “the same orange blouse” is again performing its role of trigger when Hugh thought he saw “Julia Moore standing with her back to him at the telephone table in the vestibule” of Mr R.’s house (72).

In all four of these situations the character experiences something different, an extra reality simultaneous with the quotidian. A combination of memory and vision/hearing influences the character, and results in a

“mnemoptical” or a mnemauditory effect (9). An emotionally charged memory prepares for this effect, which is triggered by an object, a person, a sound or a colour. The result is a temporary change from horizontal time to vertical layers, and time becomes the fourth spatial dimension. A strong memory is required; as Mr R. could possibly have phrased it, ‘No memory, no see’. What Hugh and other characters can experience only under these special conditions seems to be quite ordinary experience for the mysterious narrator.

In examining the chaotic and fractal elements of *Transparent Things* we see that two different simultaneous worlds are described: one quotidian world that Hugh and the other human characters can perceive, and one fractal world accessible only to the narrator and the other ‘spectral companions’. The reader of this literary text is tossed between these two worlds, and will eventually have to find a way of coming to terms with them. The ‘alternative’ world becomes fractal when time is translated into a fourth spatial dimension. For the narrator and his spectral friends the fractal world is transparent the whole time, even if it takes some experience not to ‘sink’ downwards in it. For the human characters it is transparent and partly perceivable only on some special occasions. By definition chaos is unpredictable and very complex, and as we shall see in the following section this causes problems for the mysterious narrator too.

### **3.3 The Techniques and Problems of the Narrator**

Who is this mysterious narrator? *Transparent Things* contains many puzzles, including the identity of the narrator and the narrator’s strange perspective. But there are at least some clues to these puzzles. As we have noticed already the narrator describes himself as belonging to the group of ‘miracle-workers’ who risk ‘sinking into the history of’ objects such as the pencil in the hotel room. They can also experience earlier events, like those connected with the Russian novelist (7-8). The narrator refers to one of the characters as “our most valuable author” and introduces the pencil

section in order to “illustrate *our* difficulties” (34 and 11, emphases added). This indicates that the narrator belongs to a group of individuals aware of the transparent time-layers of which Hugh only gets brief flashes. The members of this group are involved in the action of the novel, but they regard it from a perspective different from Hugh’s. I agree with Brian Boyd when he claims that “the narrators are the ghosts of mortal men and women watching over Hugh. . . . Nevertheless we can single out the dominant voice within the narrative chorus” (119-20). The very first sentences of the novel give us a hint to whom the dominant voice belongs: “Here’s the person I want. Hullo, person! Doesn’t hear me” (7). Later we hear Baron R. greet Hugh with a cheerful, “Hullo, Person!” (34). This indicates to us that the narrator is one of Hugh’s “spectral companions”—the deceased Baron R. speaking from the other side of death. As Boyd observes:

The speaker of the novel’s last line and its first can be no other but R. . . . At the beginning of the novel’s present time, dead R. has himself become one of these umbral companions, and tries to catch Hugh’s attention in order to warn him about registering at the Ascot Hotel. He appears to have seen that a hot-tempered young waiter has just been dismissed after a farcical fight in the hotel restaurant and has already begun to plan his revenge: he will set the place alight. . . . [A]t the end of the novel R. can welcome Hugh over the threshold of death and into a state of being where he need no longer be trapped by space and time and self. (121)

After his death and his descent from the role of eccentric novelist, Baron R. fulfils a double function as narrator and spectral companion. (Through the special technique used by the narrator, all three roles are presented more or less simultaneously to the reader.) As Hugh’s spectral companion, Mr. R. attempts to control the action by influencing Hugh’s decisions; as narrator he has the ambition to manage the narrative and control the growth of the developing novel manuscript. Unfortunately, both Hugh’s life and the narrative of the novel form very complex patterns, largely unpredictable and impossible to control completely. Total control is impossible also for spectral companions because of the

restrictions imposed on their use of spectral powers: direct action is banned and each companion's jurisdiction limited. When Mr R. gets too eager, his colleagues restrain him and he exclaims: "What's the matter, don't pull me. I'm *not* bothering him" (7). As a narrator he cannot take direct action, as his powers are so limited; and even though he relates the story, he must accept the very restricted role of an editor.

Hugh is made to return to Switzerland: "something connected with spectral visitations has impelled him to come all the way from another continent" (97). To a large extent Person is in the hands of the ghosts (35), who themselves are restricted in their actions:

Direct interference in a person's life does not enter our scope of activity, nor . . . is his destiny a chain of predeterminate links: some 'future' events may be likelier than others, O.K., but all are chimeric, and every cause-and-effect sequence is always a hit-and-miss affair. . . . The most we can do when steering a favorite in the best direction, in circumstances not involving injury to others, is to act as a breath of wind and to apply the lightest, the most indirect pressure such as *trying* to induce a dream that we *hope* our favorite will recall as prophetic if a likely event does actually happen. (95)

Again we encounter the unpredictability of cause-and-effect in a complex nonlinear system. The chaotic patterns of life are shown as presenting problems also to the spectral companions. When they prod Hugh to revisit Switzerland their suggestions are made through images of Armande, suggested to him in his dreams:

Practically all the dreams in which she had appeared to him after her death had been staged not in the settings of an American winter but in those of Swiss mountains and Italian lakes. . . . The desideratum was a moment of contact with her essential image in exactly remembered surroundings. (97)

Hugh's mind is furnished with pictures of Armande in a Swiss setting. The spectral companions cannot decide for Hugh, or force him to go, but by stratifying present and remembered emotionally charged images in his mind, they push him towards making the decisions they feel would be preferable. This is possible for them because of their awareness of all the relevant time-layers and their ability themselves to oscillate between these

layers, in the same fashion as Mr R. fluctuates between his two major roles of character and narrator, aiming at control of action and narrative.

The techniques the narrator uses to control the complex narrative are the same as those Hugh uses in his attempts to manage the chaos around him. The first is a method of reducing the complexity to more manageable proportions by fragmenting the whole and zooming in on some elements of particular interest.

Now we have to bring into *focus* the main street of Witt as it was on Thursday . . . It teems with transparent people and processes, into which and through which we might sink with an angel's or author's delight, but we have to *single out* for this report only one Person. (48, emphases added)

These chosen elements are then used in two contrary ways in the text of the novel: elements are brought together or they are separated. When brought together they function as links between the different horizontal sections or as bridges between different time-layers. We will explore this further in a subsequent section. Let us first examine the problems encountered by Mr R. in his double capacity of spectral companion and narrator. As we will see, the narration is very complex and difficult to control, and so is Hugh.

Hugh is a stubborn individual, who does not always follow small hints, but acts according to his own spontaneous will. This causes problems for the spectral companion attempting to control the action of the novel of which he [the companion] is also a part:

Person was conscious of something or somebody warning him that he should leave Witt there and then for Verona, Florence, Rome, Taormina, if Stresa was out. He did not heed his shadow, and fundamentally he may have been right. We thought that he had in him a few years of animal pleasure; we were ready to waft that girl [the pretty receptionist] into his bed, but after all it was for him to decide, for him to die, if he wished. (101)

When Hugh's spectral companions try to warn him of his predetermined death, he does not listen. Here Hugh decides, and all that the companions can do is to give a few feeble hints, insufficient to determine Hugh's

decision. Some of the narrator's hints about the outcome of the narrative are also powerless.

For the narrator the narration is troublesome because it is such a complex pattern. Furthermore, the narrator cannot finally make all the decisions to form the narrative but only edit and relate it. The narrator prepares the reader for Hugh's death by a fall, and starts giving suggestions to that effect: Hugh's father falls, and Hugh himself shows signs of anxiety, as "our acrophobic Person felt the pull of gravity inviting him to join the nights and his father. . . . Tonight, on the highest floor of a strange hotel, he lacked all protection" (24). In the end Hugh does not fall, but dies by choking (106). Again the narrator's hints lead to nothing. Boyd comments:

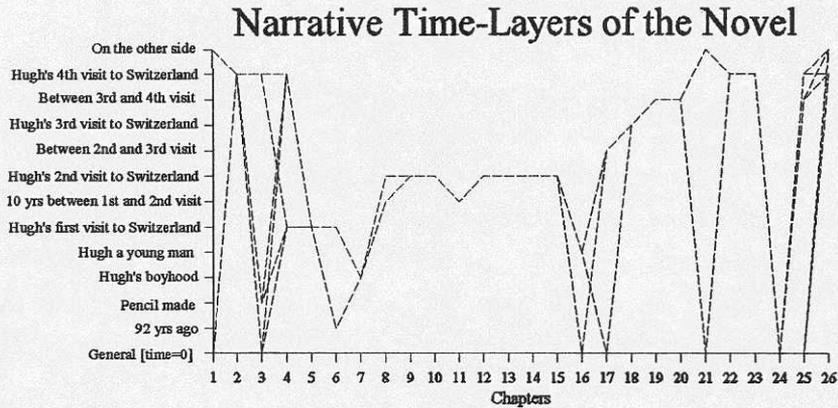
The complexity of the whole pattern of names and rooms, fires and falls, seems inevitably to imply a patterner who has planned the whole design, even the exact mode of Hugh's death, from the very first. Our narrators, our transparent things, have looked around into the evidence of the present and the pattern of the past, and deduced that Hugh will fall from his hotel room to his death. They are mistaken. They do not invent but merely relate: they have not created or designed Hugh's world. On the other hand, they can understand its design and the force behind it better than mere mortals. (125)

Hugh's world exemplifies the unpredictability of complex systems, and here it has become obvious that they are impossible to control and difficult to understand completely even for the spectral companions. As we shall see in the following section, the complexity of the world of the novel is also mirrored in the structure of the novel.

### **3.4 The Narrative Structure of *Transparent Things***

The world depicted in *Transparent Things* has a nonlinear and fractal structure. As we have seen (Fig. 1) this world is layered, and so is the narrative. Fig. 2 below is a simple illustration of the narrative layers, and

of the narrative oscillation between these time-layers:<sup>8</sup>



In this diagram the temporal sections (layers) of the narrative are ordered from early (bottom) to late (top). For each chapter one or a few points indicate which time-layers are dealt with. These points are connected to illustrate the narrative path. This path varies from the simplicity of a single line, to far more complex patterns. For example, chapter four deals with events on two time levels, 'Hugh's fourth visit' and 'Hugh's first visit', while all events in chapter five relate to 'Hugh's first visit to Switzerland'. Therefore there are two lines symbolizing the narrative path between these two chapters. As demonstrated by the diagram, there is an orderly section (one narrative path only) in the middle, where the narrative line is fairly simple: chapters 8 to 15 relate the events of Hugh's second visit to Switzerland without much interruption. The section before (ch. 1-7) and after (ch. 16-26) are more complex. Here the complexity is greater as the oscillations between time-layers and multiple narrative paths are much more frequent. The narrative structure displays order mixed with chaos, a characteristic of nonlinear patterns. Another characteristic is self-

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<sup>8</sup> My claim here is not that the diagram conveys any exact 'mathematical truths' about the novel. The diagram is intended as a simple illustration of the different narrative time-layers, and the different degrees of complexity, in this respect, in various parts of the novel.

similarity, repeating patterns across scale.

As the narrative moves along, shifting between layers, there is a play of similarities at different layers when similar patterns are repeated across scale. Some of these repeating patterns have been demonstrated already, showing that the world depicted in the novel consists of different layers, always transparent for the spectral companions and sometimes for the human characters. The unpredictability concerning cause-and-effect makes chaotic patterns impossible to control completely, but, as I have observed, methods of improving the understanding of at least parts of these complex systems involve freezing moments, fragmenting and choosing details, and then iterating the selected elements. For everybody involved, human as well as spectral characters, editing appears to be a more feasible activity than creating. In this section I will demonstrate a few more of the novel's typical traits, and the first is very much linked with editing.

The world of the novel is the world of writing, inhabited by authors, editors, publishers, and manuscripts. As we have seen, the 'spectral companions' can also be perceived as a kind of editors. In this world Hugh starts from basics, as he "had been in the stationery business . . . and a fountain pen he had promoted bore his name: The Person Pen" (28). Later he joins a publishing firm, where he proof-reads and edits manuscripts written by "our authors" (28). "In a diary he [keeps] in fits and starts Hugh" re-creates parts of his life (32). It seems natural for him to use the same techniques later when he wants to re-gain control over his life: he edits. This is a logical choice, especially since both Hugh's life and the world of the novel are so very much like manuscripts.

The world is depicted as a manuscript that can be edited. The ghost/narrator tries to guide the outcome of Hugh's destiny, while Hugh edits his past life by re-iterating earlier situations. To edit is possible because this world is not ready made or set. It is chaotic: it is a complex system in the process of being transformed. As Gleick writes, "chaos is a science of process rather than state, of becoming rather than being" (5).

Hugh writes in his diary: “‘Ask me what I *can* do, not what I *do*. . . . I can compose patches of poetry as strange and new as you are, or as anything a person may write three hundred years hence, but I have never published one scrap of verse except some juvenile nonsense at college . . .’” (32). Hugh’s world and his deeds consist of possible potential events of ‘becoming rather than being’. Manuscripts are never completed, but constantly changing, so that even if they seem static at a particular moment, erasures can be made or new layers added to the old ones.

As we have seen, the world of the novel is layered. The ‘present time-layer’ is the space for the two novelists, Baron R. and Mrs Flankard. In one of the layers below the ‘present’ we find the Russian novelist and his manuscript (22-3). This manuscript, in turn, contains layers of ideas and layers of writing. Its top-layer represents the latest version of the text—the current result of an ongoing re-iterative creative writing process of “energetic erasures and untidy insertions in purple, black, reptile-green ink. The sight of his handwriting fascinates him; *the chaos on the page is to him order*, the blots are pictures, the marginal jottings are wings” (23, emphasis added). The Russian novelist perceives a system in the seeming chaos, and sees order in the midst of disorder. The “marginal jottings” are the “wings” fluttering to other ideas and still other layers, with new potential diversions and additions that according to Tristram Shandy are “the life, the soul of reading.”<sup>9</sup> The re-iterative writing of Hugh’s life is one of many developing complex patterns in the novel.

The complex patterns in the novel are chaotic in the sense suggested by chaos theory. In Hayles’s phrase, chaos is ‘orderly disorder’. Chaos is not simply lack of order, but abundance of information so complex that it can never be totally explained. Typically, the ghosts/narrators of the novel are not allowed to give away to humans the innermost secrets: they “are not

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<sup>9</sup> Laurence Sterne, *The Life and Opinions of Tristram Shandy*, ed. Melvyn New and Joan New (The Florida Edition) (UP of Florida, 1978) 81; or Laurence Sterne, *The Life and Opinions of Tristram Shandy* (Harmondsworth: Penguin, 1988) 95.

supposed . . . to explain the inexplicable” (96). The difficulties of explaining and predicting the developments of these patterns are due to the ‘sensitive dependence on initial conditions’ and to the complex interaction of many forces. Thus in *Transparent Things*, events and situations are the results of initial conditions and of what happened earlier.<sup>10</sup> The outcome is unpredictable because there are several separate forces working on Hugh’s life, and on the world of the novel. The relationships between cause and effect are erratic and unforeseeable. However, as I will demonstrate, a certain line of development depends not only on the previous events that actually took place, but also on the potential events that do *not* occur.

These non-events are important because by not occurring they change the condition at one stage by reducing the possible influencing factors. Most often non-events are ignored, simply because there is an infinite number of them, and the events that do occur, the positive factors, are themselves numerous enough to make the outcome practically unpredictable. In daily life non-events are only thought of in extreme situations. (I am happy I did not meet anyone when for a moment I happened to be driving on the wrong side of the road. The reason no accident occurred is here partly due to a non-event: I did not meet anyone just then and there.) The unpredictability of complex patterns is emphasized in *Transparent Things* in an interesting way, as many specific non-events are indicated. I will point to some of them.

In the first of the non-events I have chosen, we are back again in the roominghouse. When the Russian novelist looks at his manuscripts lying on the deal table, he obviously gets a new idea. He “uncorks his portable ink and moves nearer to the table, pen in hand. But at that minute there

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<sup>10</sup> What these ‘initial conditions’ are depend on what sequence you are interested in. Every moment since the beginning of time generates infinite numbers of ‘initial conditions’, and this ‘infinity’ is at the core of the term. Because of there being ‘no limit’, there can be no absolute knowledge of every little element that plays a part, and thus no control.

comes a joyful banging on the door. The door flies open and closes again” (23).<sup>11</sup> Does he write down his idea, or is he interrupted? If his idea is written down, the manuscript is actually changed; if not, the potential change is a non-event. When Hugh rings the bell at Villa Nastia, the only response is, “[a]s happens so often in Mr R.’s fiction, [that] ‘nobody answered the bell’” (41). Later, when Hugh talks to Madame Chamar he *could have* spotted a folded letter used as a marker in a book. This is (probably) his letter to Armande, “which we [the ghosts] thought wiser our Person should not recognize” (42).<sup>12</sup> Recognizing the letter in its humiliating position might have upset Hugh, and made him less interested in Armande, resulting in a completely different development of his relationship with her. The fact that “he had never learned to ski on a holiday at Sugarwood, Vermont” certainly had an impact on his first meetings with Armande and her then friends, and on the developments of the events that were to follow (47).

The last of the non-events that I have chosen concerns the situation when “a Swiss business man [is] flipping through an ancient number of an American magazine (which had actually been left there by Hugh eight years ago, but this line of life nobody followed up)” (98). What potential impact such a follow up could have, we cannot say, but as with all these non-events, small causes could lead to large effects. ‘The Butterfly Effect’, or ‘sensitive dependence on initial conditions’ is at work on all the complex patterns of the novel. Every non-event leaves a gap in the chain

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<sup>11</sup> This “joyful banging on the door” is one of the more interesting puzzles in the novel. The reader cannot be certain on which time-layer the banging takes place: does it occur when the Russian novelist is in the room or when Hugh is in the room with the girl. In Fig. 1 I have indicated both possibilities. Here my tentative choice is the first alternative.

<sup>12</sup> The ‘we’ used by the narrator is sometimes a bit ambiguous: it can be interpreted as a ‘quotidian’ plural form and refer to the group of ‘spectral companions’. However, sometimes the word (also) connotes the magisterial 3rd person.

of causes, giving more space to the causes actually in operation. Thus, we have to deal with two kinds of causes: negative causes, or non-events that form gaps in the causal chain, and positive causes actually in operation. This emphasis on the cause-and-effect relationship further stresses the unpredictability of the complex patterns of *Transparent Things*.<sup>13</sup>

As we have seen, the narrator's technique of controlling the complex world of the novel is to fragment the complexity and to zoom in on some chosen items. These items are then presented in the novel not as a linear series of events, but in a more chaotic fashion, characterized by double perspectives and a random positioning of the elements. In the novel the two perspectives present time as horizontal or vertical, and related elements are often placed far apart. All this creates a great many puzzles.

The clues to the puzzles in the novel may be found at unpredictable locations in the text. Naturally, this means that there are never completely clear links between these elements, only 'possible links', and 'possible interpretations'. One of the puzzles we have already touched upon is that of the narrator's identity. The first lines of the novel raise the questions, 'Who is the narrator?' and 'Who is the person referred to?' On the very first line of the second chapter the reader gets one of the clues he needs when 'Hugh Person' is mentioned by name for the first time, while the first clue to the narrator's identity has to wait until Chapter 10: "Hullo, Person!" (34). Hugh's mistaken "Fantastic in Blur" is decoded less than 10 lines later via a postcard of "Majestic in Chur" (9-10). When Hugh has

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<sup>13</sup> Some other non-events and non-situations in the novel: Hugh stops the "inexistent motion" of a bedside table (26); Reubenson, the non-existing actor (35); Hugh could not pinpoint Armande's silhouette among the skiers (56); "if [Armande's boots] had not been especially close fitting she would have wiggled her toes inside"(57); the French touring guide did not list "many 'pleasant, quiet, well-situated hotels' with three or more turrets and sometimes a little red songbird on a twig" (76); "the post office, with the bench near its door waiting for letters that never came" (89); "the stream where he had once washed his feet and the broken bridge which suddenly spanned the gap of time in his mind were nowhere to be seen"(92); "not the way to the glacier gondola" (93).

seen Armande and Julia at the café, he “started walking back to his hotel, but then pulled up short with a curse and went back to retrieve his parcel” (52). This parcel has not been mentioned before, but might well contain the “nice gray turtleneck sweater” he bought at the beginning of the same chapter (48). “A torn piece of *La Stampa* and an empty wine bottle” (at the end of chapter 11) is referred to a few lines later (at the beginning of chapter 12) as “a workman’s empty bottle and an Italian newspaper” (40-1). A more intricate puzzle is what started the fire that was to be so fatal to Hugh. Was it the “hot-tempered young waiter,” as Boyd claims? (121). As we have already noticed, some clues lead astray, as with all the hints to Hugh’s death by falling, followed instead by his death by choking. In all the cases I have referred to here, the elements are spread out along the novel’s horizontal line of development. In other cases, due to the special perspective of the spectral companions, or as a result of their special technique of seeing ‘through time’, distant elements are placed close together, in sequential vertical time-layers.

The two different perspectives in the novel are formed by the different abilities of the spectral companions and the characters. I will call these two perspectives ‘quotidian’ and ‘mnemoptical’. The first is Hugh’s quotidian, perspective, which is sequential and linear, and how we ordinarily perceive and remember events. The second is the special perspective of Hugh’s spectral companions, which is fractal and nonlinear. Time here is transformed into a fourth spatial dimension. For brief periods the characters occasionally experience this perspective, which is evoked by some strong memory and some object that functions as a link between times. On Hugh’s last visit to Villa Nastia he cannot quite find the way, when

a large, white, shivering dog crawled from behind a crate and with a shock of futile recognition Hugh remembered that eight years ago he had stopped right here and had noticed that dog, which was pretty old even then and had now braved fabulous age only to serve his blind memory.

The surroundings were unrecognizable – except for the white wall. His heart was beating as after an arduous climb. A blond little girl

with a badminton racket crouched and picked up her shuttlecock from the sidewalk. (90)

The dog, the girl, the shuttlecock and the woman he asks the way: he has seen each item before (41). These items are placed in Hugh's view to 'serve his blind memory'. Like the images of Armande that have brought him to Switzerland, they make Hugh experience temporally separate events as simultaneous. A temporary mnemoptical layer is created by the ghosts/narrator. While the spectral companions can experience time-layers all the time, Hugh can only do this when items are brought together for him. Now, let us examine how this bringing together may be perceived, but first a clarification.

I have claimed that within the mnemoptical perspective, time is made into a fourth spatial dimension. Some readers might argue that quotidian, horizontal, time is also spatial because 'horizontal' is a strictly spatial dimension. My view is that this is a misconception due to the metaphor or the graphical representation used. Any graphical representation is spatial for obvious reasons. As a deeper analysis demonstrates there are fundamental differences between the two perspectives in the novel.

The quotidian perspective views time as a one-way movement, and every change within a three-dimensional space is linked to the progression of time. Movement and time depend on each other: movement is impossible without time, while time cannot be observed without movement. Within the mnemoptical perspective no time exists, only spatial layers of events and situations. The layers are stationary, even if the spectator can 'sink' down through them. What is experienced simultaneously may well be far separated in time. The quotidian perspective is linear, as elements have fixed positions and events temporally linked appear together and must be perceived "in the 'now' direction" (13). Consequently, elements separated in time are experienced as separated. Because time moves in one direction only, there is always a before and an after. Within the mnemoptical perspective related elements appear together in a random way; the positioning of elements is complex,

turbulent and unpredictable. In short, quotidian perspective is linear and ordered, while the mnemoptical perspective is complex, fractal and chaotic. Thus, the patterns in the novel again illustrate the differences between ordered and chaotic systems, and the onset of turbulence.

Chaotic systems are unpredictable, but their causes and developments can often be partly traced. In an attempt to reconcile the two systems, I will draw on an explanatory technique from chaotics: “Smale’s horseshoe,” or explaining by folding.

‘Smale’s horseshoe’ is a very graphic way of explaining how elements starting far apart can end up close together, or *vice versa*. Gleick writes:

To make a simple version of Smale’s horseshoe, you take a rectangle and squeeze it top and bottom into a horizontal bar. Take one end of the bar and fold it and stretch it around the other, making a C-shape, like a horseshoe. Then imagine the horseshoe embedded in a new rectangle and repeat the same transformation, shrinking and folding and stretching. . . . [T]he horseshoe provided a neat visual analogue to the sensitive dependence on initial conditions. (51)

The process can be illustrated like this:

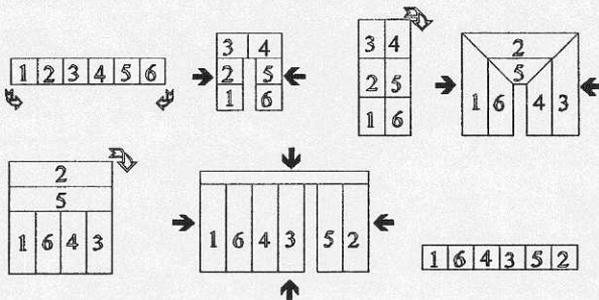


Fig. 3

At the start, the elements involved are ordered in a particular way (see numbers). Through a series of foldings, like a baker kneading and stretching a lump of dough, the structure is transformed. As we can see,

the 1 and the 2 start close but end far apart, while the 1 and the 6 go the other way. Other foldings are, of course, possible, and Smale gives a few examples (25-8). As Hayles claims: "For both Derrida and Feigenbaum, iterative methodology is closely tied with the concept of the fold. Feigenbaum showed that systems that make orderly transitions to chaos always have folds in their iterative paths. . . ." (*Chaos Bound* 183). Seen in this light, the mnemoptical perspective of the novel may be perceived as the result of a *mnemoptical folding*, bringing images into vertical transparent layers.<sup>14</sup>

When looking for a way of reconciling the two perspectives in *Transparent Things*, folding is of particular interest because the narrator hints that folding is an important feature of the novel. Folding is already a problem for Hugh on his first visit to Switzerland, when "Person Senior. . . decided to take his umbrella. It was badly folded, and he began to improve its condition" (16). His "clumsy hands" are not made for folding, and after some attempts with the umbrella "its button had disappeared among the folds and furrows of space" (16). On the night of Hugh's brief affair with Julia, he "was moved to enfold in his shy paw the childish hand that had accidentally touched his kneecap" (38). Later that night, as mentioned above, when Julia experienced a mnemoptical folding and saw the image of "one of her best young males," this view is triggered by the orange colour of her blouse, which she mistakes for "oranges in a wooden bowl . . . She was almost sorry when upon looking around she located the source of vision in the folds of her bright things thrown over the back of a chair" (39). In the novel folding is often related to various manuscripts, as when "Hugh unfolded the *Journal de Genève*," or failed to recognize the "folded letter . . . acting as a marker" in a book (30 and 42). We also see how Mr R.'s secretary is "folding a note he had just scribbled, [and] passed it to Hugh" (37). The narrative of the novel may also be seen to be folded, as Boyd suggests: "They [the narrators] mark time by probing

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<sup>14</sup> Hayles comments on Stephen Smale's work in *Chaos and Order*, 9.

Hugh's past and enfolding within their account of his final trip to Switzerland the story of his three previous visits" (121).<sup>15</sup>

In this section I have pointed up some of this novel's typical traits: the novel is a nonlinear system, with many interacting layers and narrative paths. It is situated in the world of writing, and editing is used as a method of sorting out and of clarifying the complexity of the changing manuscripts. Hugh's life is also edited like a manuscript, both by himself and by his 'spectral companions'. While editing is the typical activity for Hugh as well as for the narrator, none of them seems to be able to create, to make really conclusive decisions. In the nonlinear system of the novel, related elements are placed in a seemingly random manner, and there are puzzles and clues hinting at how these may be combined. This random distribution of elements contributes to the unpredictability of the text. Generally, unpredictability is due to initial conditions, and in addition the novel contains three different types of events that all interact: non-events, possible events and events actually taking place.<sup>16</sup> One of the most intriguing characteristics of the novel is the double perspectives, quotidian and mnemoptical, representing linear and nonlinear patterns. Folding is suggested as one chaotic technique to reconcile these perspectives and give a starting point for understanding the work's nonlinear systems.

The reader taking on *Transparent Things* runs the risk, like Hugh, of underestimating the complexity of its nonlinear system. Reading the novel calls for an active reader conscious of the complexity of nonlinearity. As Michael Rosenblum argues, "Instead of the smooth and seemingly natural one-directional flow from sentence to sentence in the well-made novel, [the

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<sup>15</sup> Also note W. W. Rowe quoting Nabokov saying, "I like to *fold* my magic carpet, after use, in such a way as to superimpose one part of the pattern upon another" (Rowe, 60).

<sup>16</sup> 'Possible events' are gaps in the narrative. The reader cannot be certain if these events occur or not.

reader] must constantly move back and forth within the text. Passages which are separated by fifty pages of text must be brought together in [his mind]" (223). The reader must determine which elements can be fruitfully combined and which may be mentally deleted. All decisions are tentative, and subject to change as the reading proceeds. The reading is a re-iterative process, going backwards and forwards through the text. Its aim is not to find a single static structure, or to construct a single meaning, but rather to let meaning emerge out of the turbulence of the text. As William Paulson observes, "The reader's construction of a meaning . . . seems to proceed by a process of self-organization from noise. . ." (48). Because of its complexity, the text of the novel is not predictable, or susceptible to one simple static structure; instead it provides the chaos out of which meaning can emerge. Thus the reader's contribution is neither to find a single meaning hidden in the text, nor to create the meaning himself, but rather to participate in a re-iterative process of making a part of the meaning perceptible, a process of unfolding *Transparent Things*.

## 4 The Inauguration of Silence: John Hawkes's *Travesty* as Entropic Travel

As far as I know, no previous criticism has treated John Hawkes's *Travesty* from a purely chaotic perspective, but some important elements of such an analysis have been noted and commented on by other critics. The chaotic observation that order and chaos are mixed, and that therefore order can often be detected in the midst of chaos is at least hinted at by Charles Berryman who suggests that Hawkes "has the peculiar talent to convince us that chaos has an irresistible order" (649). Paul Rosenzweig notes the importance of complexity and fragmentation in Hawkes's texts and points to "the myriad of interlaced patterns in the triad" (156). He, like other critics, chooses to deal with the whole of Hawkes's trilogy in which *The Blood Oranges* and *Death, Sleep & The Traveler* are the first two and *Travesty* is the last part.<sup>1</sup> Rosenzweig also notes that in the "structure of all three novels . . . the natural temporal flow of the traditional narrative is forced into non-chronological images or tableaux" (148), which, in chaotic terms, would signify a fragmented and fractal narrative.

In this chaotic reading of *Travesty* I see the car trip of the novel as chaotic and its driver/narrator as demonic. However, this does not simply imply a 'disordered' and 'cruel' narrative, in spite of its murderous and suicidal content. I will adopt the attitude of the two boys the narrator imagines discovering the wrecked car for whom "the spectacle yields only delight" (59). My suggestion is that the car trip is a representation of 'chaos' in the chaotic sense of very complex pattern, nonlinearity, and

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<sup>1</sup> It would have been outside my scope of this dissertation to take on all three novels.

fractal systems.<sup>2</sup> To use one of the narrator's own phrases, the car trip constitutes "form without meaning" (91), within the chaotic framework of the narrative.

Chaotics claims that it is impossible for humans to control chaotic patterns. To achieve this kind of control requires a fabulous figure like Laplace's demon, as William Paulson explains:

The Newtonian paradigm . . . held out the hope that certainty could be attained by reduction of the . . . complex to the simple. The most extreme conceptual figure of this project was the demon imagined by Pierre Simon Laplace. Capable of deriving all past and future events from complete knowledge of the position, mass, and velocity of all the fundamental particles of the universe, this demon—omniscient and unconnected to the dynamic system it observes—was an idealization of the scientific observer attempting to apply the paradigm of Newtonian mechanics. (LCI 38)

The narrator of *Travesty* claims to be a "privileged man" (127) and adopts the role of Laplace's demon, with the distinct ambition to control his two passengers and the car trip, as well as the narrative. Even though the narrator's claim to divine/demonic control is simultaneously (ironically?) undercut, it is interesting to examine because it accentuates what is required to control a nonlinear system: a superhuman unconnected force.

I have chosen *Travesty* because it aptly illustrates chaos and how to deal with it. The novel adds to our understanding of chaotic patterns through emphasizing its two contrary forces, 'design and debris', where 'design' stands for building up and 'debris' for breaking up the pattern. This design gives some of the 'initial conditions' and thus provides starting points for the development of the system towards nonlinearity and chaos. One of the main points in this chapter will be that 'designing' is a more appropriate term than 'creating' in connection with a chaotic pattern

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<sup>2</sup> In this chapter I use the words 'very complex,' 'nonlinear' and 'fractal' more or less synonymously to describe chaotic systems. Chaos does not mean simply disorder but an erratic development that is not linear. Chaotic systems are fractal, broken and fragmented. See Introduction, especially section 3.1.

such as a literary text because the nonlinear literary pattern is too complex for any human being to control completely. As we have seen, *Transparent Things* demonstrates that both Hugh Person and the narrator lack full control over the complex patterns they try to influence. *Travesty* also dramatizes the roles of the narrator and the reader in dealing with the chaos of the text. The narrator's early claims of creation and full control are undercut and a less demanding role is substituted.

The narrator's claim to the role of designer is observed by Berryman, who writes that "[t]he narrator thinks of himself as a privileged man, an artist imposing form upon chaos" (650). My point that the narrator's claim to control is undercut seems to be supported by Rosenzweig who claims that, "each character attempts to gain a semblance of control both by remaking reality according to his own needs and desires and by seducing others, as well as himself, into accepting and being manipulated by that alternative reality" (153). Control here is not real mastery over complexity, but an illusion of control; the narrator of *Travesty* builds this illusion in order to manipulate others and himself. I assume that here Rosenzweig takes into account only one character in *Travesty*, as Honorine or the two passengers in the car can hardly be seen as actively manipulative. As I will point out, to some critics these characters might not even exist outside the narrator's imagination.

The idea that every character or action in *Travesty* is entirely imaginary seems to be supported by Berryman, who questions the existence of characters in the novel ("characters in *Travesty*, if there are any" (648)). C. J. Allen also supports the idea that everything in *Travesty* takes place in the narrator's imagination: "the unnamed narrator of *Travesty* creates an artistic design in his imagination and wants to bring it to life. He, too, has a fascination with pattern" (589). Allen goes so far as to argue that "*Travesty* often reads more like an essay on imagination than a novel" (589). This uncertainty about the text probably adds to what Allen has termed its "inaccessability [sic]" (579).

The 'inaccessability' of *Travesty* has inspired very diverse

interpretations, one for example describing the novel as a travesty on Camus, and another as a Gothic novel in the style of Edgar Allan Poe. Both Allen and Rosenzweig interpret 'travesty' as a 'parody' of the two preceding parts of the trilogy (Allen 589, Rosenzweig 146) and Heide Ziegler explicates the two terms: "Whereas parody imitates the form of an earlier model while thwarting its content, travesty does the opposite: it imitates the content while thwarting the form" (161). Starting from this definition of the word of the title, Ziegler offers a complete solution to the mysteries of *Travesty*. Her very interesting claim is that the reader must appreciate Hawkes's "ironic homage to Albert Camus" (Ziegler 167). She explains:

John Hawkes' novel *Travesty* is a travesty in a broader as well as in the strict sense of the term, what might be termed an 'existential' as well as a 'literary' travesty: for it travesties, on the one hand, Albert Camus' *La Chute* and, on the other hand, Camus' philosophical speculations on the existential implications of suicide as well as his somewhat mysterious death in an automobile accident. (161)

Ziegler's interpretation thus makes *Travesty* into a linear, ordered pattern.

Berryman describes John Hawkes as "the Edgar Allan Poe of the twentieth century," and expands on this argument by pointing up some of the many Gothic ingredients of *Travesty*: he notes the "gothic setting" and the fact that the action "takes place entirely at night" in "a mysterious and deserted countryside . . . [presumably] in France" (643, 645). There are also "the dark chateau . . . the old Roman viaduct . . . the stone wall" (645). Berryman also emphasizes "the wall as the chosen symbol of death," refers to Honorine as "the gothic muse asleep in the dark chateau," and concludes that *Travesty* "deserves to be ranked along with the best gothic fiction of Edgar Allan Poe, but not all readers will care to be a captive audience as the narrator drives at high speed toward the stone wall" (645, 646, 653-4). I find Berryman's analysis interesting but, like Ziegler's reading, it is limited to the ordered, predictable and linear sphere where the basic comparison is established.

Naturally, my reading of *Travesty* is very much concerned with the

literary nonlinear patterns depicted in the novel and the narrator/protagonist's aim at control over this chaos. I also share Donald Greiner's conviction of the necessity to "involve the reader in the creative process."<sup>3</sup> This process must be shared between narrator and reader, and it includes attempts at getting some kind of control over the literary text and the meanings it conveys. As we have already noticed in the preceding chapters, all such control of nonlinear patterns is very problematic.

The narrative, like the road and the trip, becomes increasingly complex, and displays many features of nonlinear systems. It consists of many single, simple elements, numerous sub-stories and characters, and numerous contradictory and paradoxical smaller details, that together contribute to the complexity of the whole. While the ultimate end of the trip is death, destruction and the shattering of life and material—"cessation is what we seek" (22)—the aim is to communicate a message. This message will evolve from the final chaos, the entropy, of the shattered pieces of the car crash, from its "design and debris" (17, 19, 27). A message is also to be conveyed by the narrative, which like the car crash is a very complex, nonlinear pattern.

#### **4.1 The Narrator and His Audience**

There are three characters in the car, the narrator and his captive audience, but only one voice is heard and the design of the narrative is dominated completely by the narrator's monologue. (This is also a kind of travesty—of the traditional novel form.) As the driver of the car the narrator is determined to be the sole authority, in charge of both driving and narration. He claims to be "driving by plan, intentionally, and refuses to listen to what for [his passengers] is reason" (17). A very complex message will be generated, "since what is happening now must be senseless to everyone except possibly the occupants of the demolished

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<sup>3</sup> As quoted by Berryman, 647.

car” (25). So, the design of the trip is established from the start, and every attempt by the passengers to take the initiative is immediately curbed: “No, no, Henri. Hands off the wheel. . . . As for you, Chantal, you must beware. You must obey your Papa” (11).

The two passengers are not allowed to contribute directly to the narrative, but the reader can sometimes guess what they say and do, as the narrator occasionally responds to their articulations, actions and attitudes. Neither do they appear to have any chance of influencing the action. Henri and Chantal are forced to play the semi-passive double roles of participants and audience; or rather, they are simultaneously matter being worked on and receivers of a very blunt form of direct communication. What the two passengers perceive in the car is highly individual because they relate to the extremely fragmented and selected information given to them in very different individualized ways.<sup>4</sup> The fourth main character can influence the proceedings even less, as she is not even present in the car. Honorine is waiting in her ‘dark chateau’ for the other three to come.

The narrator’s wife is the main receiver of the message and the ultimate target of attack: “There will be no comforting Honorine when she receives the news” of the ‘accident’ (13). “[T]he lady of the dark chateau” (121) will probably not even be able to comprehend fully what has happened and why. Her husband declares: “She will be the last to propose any ready answers when she learns what has become of us tonight” (76). The wordless message she receives from the car crash is the most chaotic possible. To make sure she does not miss the message altogether, her husband designs certain details to guide her mind towards the interpretation he intends her to make. One small hint is “the failure of the autopsy to reveal the slightest trace of alcohol in the corpse of the driver . . .” (24). The driver/narrator also announces that he “fully intend[s] to

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<sup>4</sup> So vague are the roles of these two characters and so feeble their action that critics have questioned even their very existence, and suggested they might just be imagined by the narrator. (See Berryman, 646.) For my purpose, though, they are there with the narrator in the car.

pass the dark chateau where our own Honorine lies sleeping” (23). The fact that the car passes their home and crashes a few kilometres further on, after a senseless turn into an unfamiliar farmyard, will be the main sign to Honorine that it was no accident, but the result of an intended and planned action, and that “[i]t was all for her” (125).

The reader of *Travesty* also receives a message embedded in chaos. To be able to unfold this message the reader must accept a very active participation. Like Honorine, the reader is guided by the narrator towards a certain interpretation, but the message of the narrative too is nonlinear and chaotic and the driver/narrator, like the ghosts of *Transparent Things*, is unable to ‘force’ the receiver of the message to accept a particular interpretation. All he can do is to encourage the receiver’s imagination through hints. As we shall see, the hints directed to the reader encourage him to appreciate the nonlinear characteristics of the text, and accept a very active role.

As the narrative moves on, the trio in the car are “simultaneously . . . moving and not moving” (28). While their movements inside the car are very restricted, the car is moving at a very high speed through the night along the tortuous country road. “But see how we fly! And the curves, how sharp and numerous they are! The geometrics of joy!” (12). Let us examine these geometrics, and define what constitutes the fractal world of the novel.

## 4.2 The Fractal World of the Novel

The narrative, the road, and the landscape the car flashes through, all contribute to the same fractal pattern—“our tableau of chaos” (59). This tableau is described in nonlinear terms appropriate to a fractal world. As I shall illustrate, the chaotic features of this world are those of great complexity, self-similarity (symmetry across scale), unpredictability, and predetermination.

The country road the car races along is part of a system of great complexity. The trio in the car are “traveling in purity and extremity down

that road the rest of the world attempts to hide from [them] by heaping up whole forests of the most confusing road signs, detours, barricades” (14). The landscape offers a multitude of different roads, of different possibilities. Each single element, like a sharp turn, a road crossing or a bifurcation, might be easy to manage, as an uncomplicated system stays predictable. The complexity of a system develops and increases when many simple single elements and forces merge in an iterative process of cause and effect.

In this ‘tableau of chaos’ we can observe another chaotic feature: self-similarity. As Gleick points out, “[s]elf-similarity is symmetry across scale. It implies recursion, pattern inside pattern” (103). There are large-scale as well as small-scale similarities: the main form repeats itself in details, and details in different parts of the pattern display great similarities. The different sections of a self-similar image never exactly duplicate, but repeating shapes may nevertheless be identified. The narrator describes the overall design of the narrative in terms of a snowflake: “the design that underlies all my rambling [is] like a giant snow crystal” (27). The general shape of a snowflake or an ice crystal represents one of the most archetypical images of fractal form, and “form[s] in the turbulent air with a famous blending of symmetry and chance. . . .” (309). A close study of these shapes reveals recurring patterns.

Many of the elements constituting the narrative resemble each other and the whole of the novel. The narrator often specifically emphasizes traits in one character which are repeated in another, such as Monique whose size “mimed specifically the small size of Chantal” (65). C. J. Allen, commenting on what he calls “the narrator’s love for symmetry,” adds: “His mistress Monique physically resembles Chantal and in her sexual experiences deserves the nickname given to the daughter, ‘porno brat’” (590). The narrator describes Pascal, his son, and himself as virtually identical: “Perhaps it is he who inhabits me now in his death” (90). The doctor shares with the narrator the problem of a bad lung (26-

7), and an interest in pornography (67, 92). The similarities between Henri and the narrator are also obvious, for they are both writers and their lives are intertwined almost to confusion. As Berryman notes: "The friend of the narrator . . . can easily be viewed as his double" (648). The narrator also refers to their astrological affinity and remarks "we are both Leos" (40). Heide Ziegler concludes that "by killing Henri, his best friend and worst enemy, the narrator actually murders his *alter ego*. . . ." (165).

These are some of the small-scale parallels, but there are also similarities across scale: The pattern of the large-scale narrative recurs on a smaller scale and we get "a glimpse of the formative event of [the narrator's] early manhood" (125). "It is something of a travesty, involving a car, an old poet, and a little girl" (47). There is no complete identity between the whole of the narrative, the large-scale pattern, and the smaller scale 'formative event', but it is undoubtedly the same. Three of the main ingredients, 'a car, a poet and a girl' are present on both levels. The narrator even calls it a 'travesty'.

Chaotic systems are unpredictable because they are too complex for humans fully to understand and control. Henri and Chantal must perceive only the confusion of conflicting elements, a disorder over which they are denied any kind of influence. "[T]he course of events cannot be regulated by some sort of perversely wired traffic policeman" (15). The two passengers are like a "policeman typically wired for contradictory signals" (19). At best, they can perceive a limited part of the great complexity. Sometimes they get information from the driver/narrator, who has more knowledge. He fragments the whole, selects and provides his passengers with just a small portion of the whole, "hence [allowing them to] be in a position to prepare [themselves] *moment by moment* to achieve understanding . . ." (77, emphasis added). They get information about things they will be passing on the way: the stone hut in the olive grove (29), the village (77-9), and the cemetery (100). After passing one of these places the driver exclaims: "[N]ow you know how trustworthy I really am" (79). He claims credibility because he has knowledge about details

of the landscape they will have no chance to see as they pass. Even given these occasional pieces of information, the passengers perceive the pattern of the trip as unpredictable, and each sharp turn is a surprising and breathtaking experience. Ostensibly the driver is in control: "Well, now you can breathe again, as can I. That's a dangerous turn . . ." (52).

While the trip seems unpredictable to the passengers, the narrator claims that it is predetermined, that they "are dealing with a question of choice rather than chaos" (14), and hints that he has a "mystical insight" (76) into things hidden to others. He informs his audience:

[Y]ou and I know that all the elements of life coerce each other, force each other instant by instant into that *perfect formation* which is lofty and *the only one possible*. I am aware of a particular distance; these yellow headlights are the lights of my eyes; my mind is bound inside my memory of this curving road like a fist in glass. (15, emphasis added)

Each instant all 'the elements of life' influence each other. The position, movement and velocity of each element are determined by the forces involved. Each tiny step is simple and predictable, but very soon the pattern goes erratic and unpredictable due to iteration and feedback. The development of a chaotic system is determined by the initial conditions and can proceed in one way only. The initial conditions determine the strange attractors. Thus, the resulting 'perfect formation' is 'the only one possible'—it is predetermined. The mind informing the driver is bound inside his memory of the road 'like a fist in glass'. Is there a ruling force present that is stronger than the narrator? This suspicion calls for a closer analysis of the narrator's claim to control.

### 4.3 The Narrator's Claim to Control

The narrator claims to be in control of the chaotic pattern constituting the fractal world depicted in the narrative. This kind of control is beyond human reach, and can be achieved only by someone godlike, like Laplace's demon: someone unattached, in possession of total information about initial conditions and capable of iterating all the initial data. The

narrator claims to match this description but he also undercuts this self-image by presenting a number of flaws in the demonic portrait. This dual message creates an interesting uncertainty, which forces the reader into an active role. The narrator declares that nothing will obstruct “the car accident that is intended,” and proclaims: “Our speed is a maximum in a bed of maximums which happen to include: my driving skill, this empty road, the time of night, the capacity of the car’s engine . . .” (46, 15). He can drive at top speed because he is well prepared.

The narrator has really made a great effort to control what determines the fractal pattern of the trip and the narrative—the initial conditions. He has prepared himself by making sure that both he and the car are in top shape: he has been to see the doctor for a medical examination (90) and been to the garage to get his car checked: “You cannot be aware of those innumerable late afternoons each of which contained this silent car, the technician sprawled on his back beneath my car, a bank of chromium instruments, a silence only faintly smelling of grease and oil, myself as the patient spectator in one corner . . .” (16). In addition he has gathered a lot of very detailed information about locations on and off the road of his choice. He is able to inform his passengers before they pass spots of particular interest. He has gained this knowledge by repeatedly passing along the same route: “You cannot know how often I have driven this precise route alone and at the fastest speed I could achieve”(15-6). So, like Hugh Person in *Transparent Things*, after a first step of gathering information, his second step is to iterate the fragments he has collected.

The narrator describes himself as involved in a constantly ongoing process: “I am always moving. I am forever transporting myself somewhere else. I am never exactly where I am” (75). In this process each position is simultaneously a result and a new starting-point in an iterative process. As we have seen, chaos defines iteration as the key process for the generation as well as for the unfolding of chaotic patterns. The narrator’s constant iteration reveals to him chaotic patterns where “the

familiar and unfamiliar lie everywhere together,” where opposites are reconciled and similarities oppose each other (75). His “theory of likenesses” unfolds the apparent paradoxes into clarity, and allows him to see “the man in the child, the child in the grown man” (97, 76). Clarity is the narrator’s main aspiration (103), and he declares:

[T]his propensity of mine toward total coherence, which leads me to see in one face the configurations of yet another, or to enter rose-scented rooms three at a time, or to live so close to the edge of likenesses as to be eating the fruit, so to speak, while growing it. In this sense there is nowhere I have not been, nothing I have not already done, no person I have not known before. (75)

The narrator claims that there is nothing he has not already done, and nothing he has not known before: there are no sources, no original, and no copies. His constant iterative motion contributes to his understanding of the chaotic pattern, and also functions as a hint to the reader about how to deal with chaotic patterns. His awareness of the ‘total coherence’ leads him to see how every element is linked to some other, eventually connecting all elements into a coherent whole. In terms of chaotics, we have here an illustration of the ‘field-concept’ in operation; an operation where everything is included. Paradoxically, the only possible position for full control of a complex pattern is an impossible outside position. So full control of a complex pattern is out of reach for all humans. This, however, seems to be what the narrator claims.

The narrator’s version of total coherence of the pattern also incorporates time, which is reduced and eliminated as a discrete entity. He claims, like the ghosts of *Transparent Things*, to experience temporarily separate objects and events as simultaneous, such as to be eating the fruit when it is growing. He claims a divine/demonic perspective that eliminates time, and allows everything to exist simultaneously. His ‘theory of likenesses’ conveying ultimate understanding, and a cognizance of ‘total coherence’ places the narrator in a timeless space of absolute knowledge not attainable for ordinary humans. In short, the narrator claims a ‘privileged’ outside position.

The narrator frequently presents himself as an exterior observer of the action. He observes Henri and Chantal from the window at his doctor's (91). When the car is being checked at the garage he is "the patient spectator in one corner" (16). As Paul Rosenzweig observes, the narrator "continually steps outside of himself, viewing the interior of the car through its rain-streaked windows 'as if an invisible camera were recording our desperate expressions through the wet glass.'" <sup>5</sup> The narrator contemplates how "we inside the car are given to see ourselves as through the eyes of some old sleepless goat-herd on a distant hill . . ." (52). The fabulous demon can take many shapes.

The driver/narrator hints at his own divinity when he points out the affinities between himself and Pascal. His dead son is presented as "a child god" with "princely manner" (85, 89). The boy is second to nothing as he is "his own source" (86). "[I]f he had lived . . . his head [would be] day by day swelling to the round of the laurels . . ." (89). The boy is portrayed as a wise godlike son. The narrator claims these characteristics also for himself: "Perhaps it is he [Pascal] who inhabits me now in his death" (90).<sup>6</sup>

To sum up, the narrator draws a picture of himself and his powers as more superhuman than human. He refers to himself as free and powerful enough to observe externally the complex patterns around him. As defined in the introduction, the 'field concept' describes everything, including a possible observer, as belonging together in the same 'field'. Therefore an observer and controller from outside this field must be something divine, or something like Laplace's demon. As demonstrated in this section, the narrator hints at his own divinity and claims the total knowledge and firm control of an unattached demon. For good measure, he once refers to the car they travel in as "our demon steel" (23). As his

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<sup>5</sup> Rosenzweig, 149. (Rosenzweig quotes *Travesty*, 35.)

<sup>6</sup> As I will show below, the weak form of this claim is typical of the narrator's mode of expression.

monologue is the reader's only source of information, the narrator is completely unchallenged. However, there are also signs to make the reader doubt the narrator's divine/demonic self-picture.

The portrait of the narrator as a demon has many flaws. Physically he is far from fit: he lacks one lung and is oversensitive to low temperatures (44). According to C. J. Allen's highly charged description,

. . . it is evident that the privileged man has had little control over his life. Honorine and Chantal picked out the woman of pleasure for him, his mistress Monique beat him into impotency just when he was expecting his greatest happiness, his wife and daughter turned to Henri with their affection. (590)

The narrator's own claims are frequently staged in a rather feeble fashion: instead of presenting his statements in a straightforward manner, he often starts with "Do you know (44); "You cannot know/be aware of" (15, 16); "Perhaps"(43, 90); or he refers to what Honorine's view is (44, 75, 76). He openly admits he is "not always in total mastery of the life [he] create[s]" (74). Where the trip is concerned, he regrets the fact that "unhappily the rain has become a kind of general hazard" (77). He is not quite convinced that they will not encounter any obstacles along the road: "Let us hope that I have not miscalculated and that there is not some overblown machine now lumbering down upon us, filling the road ahead . . ." (22). After a sharp curve he admits problems with his timing:

That's a dangerous turn, you saw how much trouble it gave me, for all my knowledge of the route and no matter the perfect timing—or perhaps *nearly* perfect timing, I should say—with which I prepared once more to meet its treachery. (52, emphasis added)

He also admits (again in rather weak terms): "Perhaps I am only a counterfeit Leo, a person who has lived his life under the wrong sign of the zodiac—the coward to your [Henri's] man of courage" (43-4). Perhaps is he "merely the product of an astrological error" (43). Rather than being a powerful demon, that makes him a dis-aster ("wrong-

starred').<sup>7</sup>

The narrator does not seem to be in control. His claims do not seem to express anything but a “need for maintaining the illusion of godlike control, potency, and immortality. . . .” (Rosenzweig, 160). He is not omnipotent, but he seems to know enough about chaotic systems to attempt to present, perhaps ironically, an illusion of himself as superhuman. He is more of a travesty than a real god/demon, and does not have the control over the complex patterns around him that he claims. Instead other forces rule.

Let us recall one of his statements I have already quoted: “[M]y mind is bound inside my memory of this curving road *like a fist in glass*” (15, emphasis added). A ‘fist in glass’ I see as something potentially powerful that is perceivable, but trapped and incapacitated. In my reading, the narrator’s declaration that his mind is ‘like a fist in glass’ is a potent hint to the reader and a reminder that the capacity of the human mind is too limited and restricted to control chaotic patterns. His mind is trapped inside his memory of this curving road because the human mind is insufficient fully to grasp its complex chaotic pattern. Therefore his mind is subordinated to his memory, which is the result of his many drives along the road, his many iterations of it. The pattern of the road is too complex to be easily understood and remembered, but his memory of it has gradually been built up. The iterations of the pattern of the road have generated the chaotic pattern that is ‘written’ on his memory. When he now drives along the curving road at a high speed with his two passengers, the driver is forced to make many quick decisions and frequently his mind is not powerful enough to take him through instead he has to ‘read’ from his memory. That memory helps him through because of the many previous iterations, and he ‘knows’ what to do when he comes

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<sup>7</sup> Cf. *Collins English Dictionary* (1993), s. v. *disaster*: “1. an occurrence that causes great distress or destruction. 2. a thing, project, etc., that fails or has been ruined. [C16 (orig. in the sense: malevolent astral influence): from It. *disastro*, from *dis-* (pejorative) + *astro* star, ult. from Gk *astron*”

to a difficult section of the road because he draws on his memory of it.<sup>8</sup> The driver/narrator has not ‘created’ his complex memory of the road, but he has ‘designed’ it by driving along the road many times.

In this section we have seen how the driver/narrator claims a superhuman ability to control nonlinear, chaotic patterns and also how he undercuts this very claim. These contradicting descriptions are a powerful hint to the reader about the complexity of chaotic patterns and a reminder of the reader’s necessary contribution to establishing meaning. Similar to the driver/narrator, the reader will be incapable of ‘creating’ meaning on his own, but he can contribute to the emergence of meaning. What the reader must do is to iterate the text and let the process of feedback work for him. The reader’s design consists of the choice and the initiation of a process leading to meaning. The constructive force of design in complex patterns is always counteracted by the destructive force of debris. In the following section, we will explore the ‘design and debris’ of the novel.

#### 4.4 Design and Debris

In my chaotic reading of *Travesty* we encounter the ‘design and debris’ of a chaotic pattern. The narrator, contemplating the imagined status of the car after the crash, notes that “nothing has disturbed the essential integrity of our tableau of chaos, the point being that if design inevitably

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<sup>8</sup> This, I take it, is how memory often works: Memory is the result of a complex series of factors iterated into an chaotic pattern. One example: let us say I have a problem remembering the safety code of all my credit and key cards. I sometimes cannot state the correct code for a particular card, but in a situation when I need to use the code I am helped by the ‘complexity of the situation’ to remember. When I have inserted my Shell card into the card reader, I remember the code because of the closeness to my car, the slight smell of petrol etc. When I have drawn my key card through the university porch card reader, I remember the code because of the surroundings, the awareness of what I will presently do, and so on. The chaotic, very complex, situation releases from my memory the right code because of the iterated complex image of the unique environment connected to each card.

surrenders to debris, debris inevitably reveals its innate design” (59). In chaos, design and debris are intimately linked. ‘Design and debris’ is also an important formulation for the narrative under consideration.

The narrator claims, as we have noted, to control the development of the trip as well as the narrative because his “choice” is the underlying force (14). The driver/narrator has no doubt designed the trip, but to control its nonlinear development he needs to be a demon because the development of a nonlinear system, predictable at first, soon explodes into the chaos of different possibilities, unpredictable to humans beings. Our doubts as to the narrator’s role as a demon are confirmed by the narrator’s declaration that

nothing is more important than the existence of what does not exist; that I would rather see two shadows flickering inside the head than all your flaming sunrises set end to end. There you have it, the theory to which I hold as does the wasp to his dart. (57)

When the narrator stresses the prime importance of ‘the existence of what does not exist’ he expresses, in my reading, his preference for an imagined world, for imagination over nature, for art over life. He prefers the imagined order of what goes on ‘inside the head’ because he can control this to a greater extent than he can the complex external world. He favours the ‘flickering shadows’ of imagination to the exploding, ‘flaming’ manifestations of nature.

Another thing that can only be imagined is the future, and in *Transparent Things* we are told that “the future has no such reality (as the pictured past and the perceived present possess); the future is but a figure of speech, a specter of thought.”<sup>9</sup> The future of a nonlinear system has no manifestations in the present and is thus part of the world that can only be imagined. The future does not exist in any palpable sense, but its existence is decided, prepared for and ‘set on track’ by underlying forces out of reach for all humans.

The future development of a nonlinear system has a hidden,

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<sup>9</sup> Vladimir Nabokov, *Transparent Things* 7.

embryonic and not-yet-developed existence in its 'strange attractors'. As Hayles explains: "Chaos in this usage [of nonlinear systems] is distinct from true randomness because it can be shown to contain deeply encoded structures called 'strange attractors'" (*Chaos Bound* 9). Previously I have defined a 'strange attractor' as what 'draws' the system to follow a certain path. This 'inner' design of nonlinear systems is hidden from the observer, and can neither be changed nor fully comprehended. Its manifestations, however, can be perceived, and they are, as we have seen, 'like a fist in glass'. The driver's mind is, in spite of all its power, incapable of 'creating' a chaotic pattern. His mind is subordinated to his memory of the road, which is the result of iteration. The underlying design—the blueprint—for the formation of the memory is its strange attractor. The 'strange attractors' are the all-embracing ruling forces, and they constitute the hidden organizing element of the 'design and debris'.

The driver/narrator in *Travesty* has a dual function: as a driver he is the designer of nature (life), and as narrator he is designing a work of art. Naturally, the driver is a character cum narrator within the framework of the narrative and in this respect one entity. My argument here is that his *function* is dual: to design the trip and the (fictional) life of the narrative and to design the narrative. I see the trip and the narrative as two patterns on different scales within the same system. In both instances, all the driver/narrator can do is to initiate a process, choose some of the initial elements and start their interaction. As we have seen the nonlinearity of a system depends on its design, but it gets its complex shape from a process of iteration.

Debris is the result of some kind of organization and its ordered structures being broken up. The most obvious illustration of debris in *Travesty* is the car crash, in which the unity of the car will be broken and its parts shattered. The importance of the concept of debris in the context of this text is frequently hinted at to the reader. Many of the characters reveal signs of the same disintegration: the doctor lacks one leg and is coughing terribly (bad lungs?) (27); "the nurse-secretary, whose body had

the shape of a girl's and the texture of an old crone's" (93); and the narrator himself is "missing one lung" (26). Here too "design inevitably surrenders to debris" (59): sometimes whole parts cease to function (leg or lung), sometimes 'the shape' is intact but the 'texture' decomposing (the nurse's body). The narrator declares:

[Y]ou will have perceived the design that underlies all my rambling and which, like a giant snow crystal, permeates all the tissues of existence. But the crystal melts, the tissues dissolve, a doctor's leg is neatly amputated by a team of doctors. Design and debris, as I have said already. Design and debris. I thrive on it. For me the artificial limb is more real, if you will allow the word, than the other and natural limb still inhabited by sensation. (27)

The narrator thrives on 'design and debris', the contrary forces of chaos, where design is the creative force of increasing order and life, while debris is the force of disintegration, increased randomness and death. 'Life' connotes a design that expands and preserves itself. In a living structure the debris is always balanced by the restoration of its design. This balance is broken when life succumbs to death. One of the doctor's legs loses its self-restorative ability and has to be amputated and replaced with an artificial limb. An artifact does not possess any ability of self-restoration; it can only be changed by external forces and cannot by itself balance the process of debris that commences as soon as the artifact is constructed. The effects of 'design and debris' in the novel are not confined to physical objects: 'passion' too can live and die, and the narrator pronounces himself "a specialist on the subject of dead passion" (74).

In *Travesty* debris is also expressed indirectly, in ways that link it to the irrevocable development of chaotic patterns that chaos calls 'entropy' and 'heat death'. Gleick informs us:

The concept of entropy comes from thermodynamics, where it serves as an adjunct of the Second Law,<sup>10</sup> the inexorable tendency of the universe,

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<sup>10</sup> " . . . the first law of thermodynamics, which states that the total amount of energy in a closed system remains constant. . . . [T]he second law, which decrees that in a closed system entropy always tends to increase." (Hayles, *Chaos Bound*,

and any isolated system in it, to slide toward a state of increasing disorder. . . . Entropy is the name for the quality of systems that increases under the Second Law—mixing, disorder, randomness. (Gleick 257)

One can visualize entropy by dripping a drop of ink into a bowl of clean water. The ink floats out and spreads; some time later it is evenly distributed in the water. The reverse process is highly improbable. Another example, even closer to our current issue is a glass falling from a table and shattering against the floor. Again we observe an irreversible process. By choice, 'design', a glass can be dropped to the floor, but cannot be raised and restored again by 'will-power'.<sup>11</sup> If the glass shatters when it hits the floor, it will never exactly resume its old shape; neither can the shape of the glass appear spontaneously. This also demonstrates that there is a limit to what can be achieved by 'design' and what can happen 'spontaneously'. Possible processes are those leading to increased entropy, as Gleick writes: "The universe is a one-way street. Entropy must always increase in the universe and in any hypothetical isolated system within it" (308). Prigogine and Stengers state that "increasing entropy corresponds to the *spontaneous evolution* of the system. Entropy thus becomes an 'indicator of evolution,' or 'arrow of time'" (119).

The arrow of time indicates the direction of time, and defines the *past* as the period we can know something about but never change, and the *future* as what we can never totally predict, but influence to a certain extent. This fixedness of the past and the future in relation to the present is a universal human condition, and no one but a demon could experience it otherwise. Laplace writes that for the demon "nothing would be

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<sup>11</sup> The glass's potential energy is transformed into kinetic energy when it is falling, after which this energy is 'lost', and to move the glass upwards would mean work which requires new energy.

uncertain and the future, as the past, would be present to its eyes.”<sup>12</sup> For humans, however, entropy defines what is forward in time, and because the arrow of time cannot be forced to work backwards, we cannot change the past. Therefore the narrator’s claim that “[we] have the power to invent the world we are quitting” may at first seem paradoxical (57). Equally enigmatic is the extreme consequence of the entropic development.

Early thermodynamics (1860s and 1870s) supported, as Hayles phrases it, “predictions of a cosmic dissipation that would end with all heat sources everywhere being exhausted, resulting in the so-called ‘heat death’ of the universe” (*Chaos Bound*, 21):

. . . there will eventually come a time when no heat reservoir exists anywhere in the universe. At this point the universe experiences “heat death,” a final state of equilibrium in which the temperature stabilizes near absolute zero (about  $-273^{\circ}\text{C}$ ) and there is no longer any heat differential to do work or sustain life. (*Chaos Bound* 39)

Heat death is the ultimate state of the constantly ongoing entropic process of reducing heat to a minimum.

It is interesting to note how our narrative exhibits frequent references to approaching cold. Very early the passengers in the car get “a glimpse of early snow curled in the roots of a fleeting roadside tree . . .” (12). The narrator confesses that he is “unable to bear the cold,” and that he experiences a “painful sensation of coldness spreading like water on tiles across the undersides of [his] thighs, [and] a sudden deadening in the end of [his] nose . . .” (44). He continues: “Do you know that I suffer acutely because one of my ears is always colder than the other? My feet begin to stiffen inside my thick socks and English shoes, the coldness of my hands defies the most vigorous rubbing . . .” (44-5). Also feelings of recognition and love are drained of warmth: “The heat of those feelings is quite gone” (85). The entropy of our narrative anticipates the crash of the

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<sup>12</sup> Pierre Simon de Laplace, *A Philosophical Essay on Probabilities* (New York, Dover, 1951) as quoted in Gleick, 14.

car against the stone wall (24). At that moment the trip ends, and matter and life are shattered. The elements involved get closer to the absolute ending when no structure and no transferable energy are available anywhere: the final equilibrium of heat death.

In this thesis I have argued that complex literary texts can be perceived in terms of nonlinear patterns.<sup>13</sup> The text is the interface between writer and reader, and it is both a dividing line and the only connection between two processes: the writing process which results in the text, and the reading process that starts from and relies on the text ‘as it stands’, as it is printed. The two processes are separate, and the text ‘as it stands’ is all that the reader can ‘know’ about. The narrator (author, artist) designs the text; he provides the elements of the text, and decides the initial interrelation and interaction between these elements, and a pattern starts to grow. In addition to the narrator’s initial design, there are links between the elements of the text and factors outside the text. Many of these external links are intended by the narrator, who uses references and allusions to other texts and phenomena in nature, society and culture in order to expand the text and generate additional meaning, but, as we know, most links develop irrespective of authorial intent. Starting with the narrator’s design the literary text develops into something more and more complex and finally results in a chaotic pattern.

When an iterative process starts, positive feedback accelerates the process, and in the literary context this means that (re-)reading increases the complexity of the text, and generates new patterns from it; new meanings (order) emerge out of the chaos of the text. The patterns (meanings) are modified by re-reading and change over time.<sup>14</sup> The

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<sup>13</sup> In this section I talk of literature, but my claims could, with minor adjustments, also be made for other works of art.

<sup>14</sup> We can compare the changing meanings generated through reading to our changing daily weather. The weather is also the result of iterative processes, and

renewal of meaning over time partly depends on new denotations and connotations of words, and also on new values and attitudes in contemporary society. Readers are very much influenced by what Hayles terms the “prevailing cultural context” (*Chaos Bound* xi.). At the same time as the nonlinear patterns of meaning grow and new ‘isles of order’ (new meanings) emerge, other meanings are lost. New readers may lack the particular knowledge that previous readers had at their disposal; thus allusions and references are lost and certain meanings of words disappear. In addition to general differences in culture over time, we must allow for different groups of readers and also for individual differences. The readings by different individuals vary because both internal and external links between textual elements differ from reader to reader: different readers have different knowledge of linguistic and other factors that play a part. Because the starting situations for individual readers are never identical, the initial conditions are different, and dissimilar patterns of meaning materialize. So from the artist’s ‘design’, the text, many different patterns arise. The contrary force is the ‘debris’, the breaking up, the disintegration and disappearance of ‘old’ meaning. The emblematic ‘design and debris’ process is always at work on the nonlinear patterns.

The narrator offers two versions of the moment after the crash, one quiet, idealized version with “the chaos, the physical disarray . . . not yet settled. . .” (58), and another quite different one, a version that is the narrator’s prediction of what will happen, a version with noisy ambulances and police vehicles. The first of these versions is the one preferred by the narrator, and reminds us of his preferences for “the shadows flickering inside the head” over the “flaming” manifestations of nature (57). The narrator assures us: “[I]f I could eliminate the flames I would,” but realizes that “it is impossible. It is not to be. Nothing will

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changes as a result of them. Even so, we often have the same weather for many days; then it changes slowly or more radically. This is also the case with reading: Often we can read a text many times without finding any new meaning, then it is there and we cannot understand that we have not seen it before.

prevent our sudden incandescence in the night sky" (58, 60). By again giving two versions the narrator illustrates a declaration he will later make: "The moral of it all is trust me but do not believe me—ever" (102). The reader cannot believe the narrator because of the doubts hinted at by the narrator himself; but the reader has no alternative source of information and must therefore rely on the narrator as the sole supplier, the only communicator.

The direction of communication also follows the arrow of time: we can send a message forward in time, but never to the past and we can receive information about the past, but never about the future. Meaning is created at each moment in an ongoing process, but relies on information from the past. Meaning thus changes from time to time, and from receiver to receiver. It emerges from chaos, through self-organization. As Paulson remarks, "Self-organization from noise, . . . provides a framework for understanding how organized variety, information, even meaning can arise from interaction with disorder" (LCI 40). Order can spring out of chaos because the design is still there, the "debris inevitably reveals its innate design" (59): a message speaks from the debris—wordless and chaotic. The silent message of the car trip is for Honorine, who is to interpret the debris of the 'crash'. It will be difficult, but she will know it was intended, and that "[i]t was all for her" (125).

While the debris of the 'crash' is for Honorine, the complexity of the narrative, obviously, is for the reader. What Honorine and the reader receive is in many ways similar: a chaotic message, with order in the midst of disorder. Like Hugh Person's 'spectral companions', and in an attempt to make the recipient favour certain interpretations, the driver/narrator gives a number of hints. Like the 'crash', the narrative is conclusively finished before the 'interpreter' starts her/his work. Honorine must be in doubt as to where to start her 'interpretation'. The reader has the options of going through the text linearly from the first to the last page, to read it 'hop scotch', or to combine these alternatives.

One fundamental difference between the trip and the narrative is that they do not end at the same time. At the end of the narrative the trip is not yet finished, and no crash is reported. The narrator's final statement, "there shall be no survivors. None" (128), is disputed by Berryman who suggests: "The only survivor is the reader, . . . released just in time to listen *for* the crash" (651, emphasis added). The reader is listening *for* the crash—not *to* the crash. Will the crash be heard at all? As the narrative ends before the crash, and the narrator provides only his prediction, the reader is left to guess. Naturally, the reader always depends on the narrator, but in this case the narrator has created a fundamental uncertainty by blurring his own image: is he a demon or just an imaginative human character? If he is an unconnected demon, he has sufficient information for a reliable prediction; if he is not, his prediction is just an unreliable guess. If the narrator is just a human character he would not survive the crash, and could not report about it. If he is a demon, he has apparently chosen not to tell about the last part of the trip, knowing that this gap in the narrative would add to the reader's confusion and to the complexity of the already complex pattern of the narrative. The reader cannot solve this problem, and the mirror image of the 'formative event' that the narrator called a 'travesty' offers little help, as the narrator relates:

I felt nothing, not so much as a hair against the fender . . . I did not turn around or even glance in the rear-view mirror. I merely accelerated and went my way.

I do not believe I struck that little girl. In retrospect it does not seem likely. And yet I will never know. (126)

Both formative event and narrative end in obscured uncertainty and silence.

The silence at the end of the narrative reflects and emphasizes a crucial moment in all texts: when the characters become dimmer, leaving only an after-image, and when the narrator ceases to communicate and falls silent. This 'moment of no return' is dramatised by the car crash in

*Travesty*, “the explosion that will inaugurate our silence” (25). It is the moment the narrator has prepared his audience for: “cessation is what we seek,” “silence is what we are after . . .” (22, 102). “Silence is consuming sight,” and the images of the text fade away (102). The reader can get no new information from the text, and is left with a complexity, full of seeming contradictions and paradoxes that he cannot entirely understand.

The reader is now leaving a world of chaos, and must make his own contribution in the creation of meaning. The narrator’s statement, “After all, my theory tells us that ours is the power to *invent* the world we are quitting” (57, emphasis added), is suddenly less paradoxical. In my reading, the word ‘invent’ is to be understood here in the original meaning of the Latin word *inventire*: “to find, come upon.”<sup>15</sup> The reader cannot create meaning himself, but by re-reading, by iterating the text, the reader can create space for the self-organization from chaos, and allow patterns of meaning to emerge.

In this chapter I have demonstrated how the car trip and the narrative in *Travesty* is depicted as a fractal world—‘a tableau of chaos’. The narrator claims to have full control: “Nothing will destroy the symmetry I have in mind” (25). To be in possession of this control he must be a demon of the kind Laplace described, a demon with full knowledge of the past and the future. However, this claim is undercut, leaving fundamental doubts about the narrator’s role as a demon, and he appears rather to be a human character with good knowledge of chaos and what controls it: ‘sensitive dependence on initial conditions’ and ‘strange attractors’. The ending of the narrative is indecisive because the narrative ends before the trip is finished, and the culminating crash is never reported. The narrative ends in a gap, in silence.

This silence designates the point where the chaos of the narrative reaches its entropic climax; it marks the crucial moment when information

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<sup>15</sup> *Collins English Dictionary* (1993), sv *invent*.

from the narrator ceases and the reader's contribution must start. The reader must iterate the text, thus creating space for order to appear from chaos, through a process of self-organization. The gap at the end of the narrative, the absent crash that is prepared for but never reported, dramatizes the point of transition from narrator's input to reader's contribution—the inauguration of silence.



## 5 The Chaos of *Tristram Shandy*: In Quest of Nonlinear Patterns

I have not encountered any chaotics approach to *Tristram Shandy* focusing on its nonlinear patterns.<sup>1</sup> In this chapter I will attempt such a reading and try to account for the apparent ‘chaos’ of the novel in terms of nonlinearity. My aim is to demonstrate that the chaotics concepts and techniques used in my reading of twentieth century novels in the previous chapters are also valid when reading eighteenth-century *Tristram Shandy*. As I hope to establish, *Tristram Shandy* is, despite of being written two centuries before *Travesty*, ‘a tableau of chaos’ of the same kind and it displays a folded complexity of a kind similar to *Transparent Things*. I apply chaotics to *Tristram Shandy*, not because I claim that Sterne was an early adherent of chaotics, but because I claim that nonlinear patterns emerge in the novel’s depiction of the world, as well as in the complex structure of the novel itself, when we take into consideration both the verbal and the extra-verbal elements.<sup>2</sup> I will largely follow Tristram’s suggestion in “The Author’s Preface” in volume three of the novel that “it must speak for itself” (227/202). This means that the literary text is of

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<sup>1</sup> The primary text used in this chapter is Laurence Sterne, *The Life and Opinions of Tristram Shandy*, eds. Melvyn New and Joan New (The Florida Edition) (UP of Florida, 1978). All page references in this chapter to the novel will be given parenthetically in the text. Page references will also be given (after the slash) to the corresponding passages in the Penguin Edition (Harmondsworth: Penguin, 1988).

<sup>2</sup> The terms ‘verbal’ and ‘extra-verbal’ are somewhat problematic. My usage in this section defines ‘verbal’ as what can be expressed in writing by using letters and written words which could also be read out or spoken; while ‘extra-verbal’ refers to all other means of expression *in the text*, all depending heavily on being printed. Thus, I use ‘text’ as a term referring to all that is printed (in the novel), both words and other signs. Consequently, ‘textual’ is used to mean something *in/of the text*, and ‘extra-textual’ something *outside the text*.

prime importance and that other, secondary material must be placed in the background where it contributes to the very complex context of the unified field and influences interpretation in unpredictable ways.

Readers of *Tristram Shandy* have complained that the novel lacks a plot, that the time sequences are confusing, and that the narrator does not seem to have any plan for his work—in short, that the novel is disorderly and chaotic.<sup>3</sup> “The first impression,” Victor Shklovsky writes, “upon taking up Sterne’s *Tristram Shandy* and beginning to read it is one of chaos” (27). Henri Fluchère goes even further, writing that the “real life-story that is supposed to be being told us completely escapes the astonished reader, who might well cry: ‘Behold the realm of chaos and discontinuity: abandon hope all ye who enter here, of ever finding yourselves again and of ever knowing the end!’” (32). The ‘chaos’ these critics refer to is almost synonymous with disorder, and in this context the role of the critic is to find the structure and restore order. However, as we have seen, chaotics, chaos theory, defines ‘chaos’ in a different way:

In both contemporary literature and science, chaos has been conceptualized as extremely complex information rather than an absence of order. . . . At the centre of chaos theory is the discovery that hidden within the unpredictability of chaotic systems are deep structures of order. “Chaos,” in this usage, denotes not true randomness but the orderly disorder characteristic of these systems. (Hayles, Introduction,

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<sup>3</sup> *Approaches to Teaching Sterne’s Tristram Shandy*, edited by Melvyn New, sets out to help instructors and their students to read *Tristram Shandy*. The first section, “Materials,” contains a very useful exposition of “Editions,” “Other Primary Materials,” and “Secondary Materials” (1-16). The first text of the second section is by Arthur H. Cash, who informs his readers that “[a] few years ago someone took a poll of graduating college seniors asking them which of the texts assigned during their college careers they most hated. *Tristram Shandy* won” (“A South West Passage,” 33). Cash maintains that “[o]ur first obligation in teaching *Tristram Shandy* is to forestall confusion” (34). One device to accomplish this is the highly valuable ‘outline’ of *Tristram Shandy* he provides. I see this outline as very helpful but, from my chaotics perspective, I both believe and hope that the students/readers will experience the chaos of the text in spite of this effort.

Complex systems of this kind are often described as ‘nonlinear’: A ‘linear’ pattern is all order; a ‘nonlinear pattern’ is the play between order and disorder, creating space for chaos.<sup>4</sup> As we have seen in the previous chapters, nonlinear systems are characterized as simultaneously deterministic, unpredictable, and self-similar.

Naturally, two centuries of reading *Tristram Shandy* have produced a great amount of criticism and many interpretations. It is apparent that the focus of reading radically shifts over time, depending on the predominant culture, providing a constantly changing background of views and values. My chief concern in this study is to read each text ‘as it stands’ and I agree with Tristram that “it must speak for itself” (227/202). Most of the previous criticism I have examined does not share my view. While my reading focuses on the shifting nonlinear patterns and the chaos of the text, my general impression is that previous criticism of *Tristram Shandy* has often drawn mainly on factors outside the text, providing annotations of the text and speculations about authorial intention, supported by biographical and bibliographical material. Critics have often attempted to explain Sterne’s literary text by trying to establish what he might have intended, and by referring to his letters and other textual statements.

Even though I have chosen a focus for my own reading that almost exclusively concentrates on the literary text, I am aware of other influences on my reading. The previous criticism I present here is the selection of articles, books, and other sources I have found particularly useful in my work with this chapter, not only for direct use as references in my own text, but also material used in more general ways to prepare for my own writing, as for example the two volumes of biography by Arthur

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<sup>4</sup> ‘System’ here means the complex structure of either a physical entity, like a tree, or the development of a ‘process’, say, the weather. In the latter case, it may be necessary to produce a ‘pattern’, a graphic representation, to be able to ‘see’ the system. I often use ‘system’ and ‘pattern’ as almost synonymous.

H. Cash, which aptly demonstrate that the story of Sterne's life is often as fantastic as his fiction.<sup>5</sup> Others have commented on, and compiled more comprehensive lists of previous criticism and I recommend the interested reader to consult one of these sources.<sup>6</sup>

One interesting study in Howard Anderson's Norton edition of *Tristram Shandy* is Wayne Booth's famous "Did Sterne Complete *Tristram Shandy*?", in which he maintains that Sterne completed the book more or less according to his initial plan. There have been widespread

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<sup>5</sup> I also found that my visit to Shandy Hall, Coxwold, added to my understanding of Sterne and his time; as did my brief conversation with Kenneth Monkman, Honorary Secretary of the Laurence Sterne Trust, one of the many enthusiastically involved in the restoration work on Shandy Hall and also a devoted researcher and compiler of bibliographical material in connection with Sterne. Mr Monkman was also a member of the advisory board when The Florida Edition of *Tristram Shandy* was prepared.

<sup>6</sup> See for example: Melvyn New, The Notes, *The Life and Opinions of Tristram Shandy, Gentleman*, by Laurence Sterne, eds. Melvyn New and Joan New, vol 3 (UP of Florida, 1978); Valerie Grosvenor Myer, ed., *Laurence Sterne: Riddles and Mysteries* (London: Vision, 1984); Melvyn New, ed., *Approaches to Teaching Sterne's Tristram Shandy* (New York: MLA, 1989); Melvyn New, ed., *New Casebooks. The Life and Opinions of Tristram Shandy, Gentleman* (Basingstoke: Macmillan, 1992). The Florida Edition of *Tristram Shandy*, edited by Melvyn New and Joan New, is considered the standard edition. The two volumes, comprising the nine parts of the novel, are followed by one full volume of annotations provided by Melvyn New, with Richard A. Davies and W.G. Day. The volume of notes is a wealth of information about 'everything' concerning the text of *Tristram Shandy*, as well as references to sources, and to comments on the predominant culture of Laurence Sterne and his contemporaries. These notes certainly help the reader's understanding, without depriving him of the pleasure of interpreting the text of the novel in his own way. As Melvyn New points out on behalf of himself and the other editors, "we have not completed the task of annotating *Tristram Shandy*, and we have not begun the task of interpreting it. . . . The interpretation of *Tristram Shandy* remains the work of every reader, who must, among the other tasks of intellectual quest and satisfaction, measure his efforts against those of readers before him" (New, Davies and Day 2, 7).

assumptions, Booth writes, “that *Tristram Shandy* is a careless, haphazard book, with little or no deliberate structure. . . . [There are] [d]igression upon digression, afterthoughts, delays, apologies—if, with all this, the reader is bombarded with claims that all is chaos, he can hardly believe otherwise” (532-3). In spite of all these signs, “Sterne planned at least large parts of the book with more care than his public attitude would suggest” (533). After having claimed that Sterne basically completed the book as he had planned, Booth concludes: “Questions about the form of this ‘formless work,’ questions which have until now been ignored . . . can now for the first time receive adequate consideration” (547-8). Booth’s conclusion intrigues me, and not only because of his refusal to accept *Tristram Shandy* as a totally disordered work. He maintains that “at least large parts” of the novel are planned, which in my view suggests a mix of order and chaos, of design and debris. Here I trace hints of chaotic ideas and methods, and find it an interesting thought that if chaotic concepts had been available in 1951, perhaps Booth’s seminal essay might have had used chaotic ideas and terminology.

In September 1968 the Laurence Sterne Bicentenary Conference was held in York, England, resulting in *The Winged Skull: Papers from the Laurence Sterne Bicentenary Conference*, edited by Arthur H. Cash and John Stedmond. Of particular relevance in this collection is an essay by Louis T. Milic, where he applies ‘Information Theory’ to *Tristram Shandy*, using as key terms “*information, redundancy, and noise*” (238). As will be apparent, there are some clear links between information theory and chaos theory as I use it. Milic defines his first term: “The information content of a message is measured by the unpredictability of its successive units. The information, in a sense, of any stereotyped greeting is very low because the first unit or two give away (help to predict) the remainder, which becomes unnecessary or redundant” (238). In short, more unpredictability means more information, which in chaotic terms means more debris, nonlinearity, and chaos. In information theory, Milic explains, “[t]he redundancy of a message is achieved by lowering the

information content (the unpredictability). The higher the redundancy, the lower the information. . . .” (239). ‘Redundancy’, in this usage, reminds us of the opposite of chaos: design and order. Information theory seems to contain the equivalents of ‘design and debris’. Milic’s main argument in this essay “is that Sterne had exhausted the possibilities of the style of *Tristram Shandy* by the time he finished the ninth volume (and perhaps before),” and that he therefore had to bring *Tristram* to a close and start a new project (237). In the novel, Milic points out, Sterne surprises his reader by constantly presenting new, unpredictable details of style, of digressions, and other devices (what I will call ‘extra-verbal’); but these tricks cease to surprise and lose their ability to capture the reader’s interest, forcing Sterne to bring *Tristram* to a close. I find Milic’s use of information theory very interesting, but do not quite agree with his conclusions. I find one of his arguments surprisingly ‘linear’ for this type of analysis: he presents a table showing when the different volumes of *Tristram Shandy* were published, and how many pages they consist of. His intention seems to be to prove that the volumes tended to be shorter and more of an effort for Sterne to produce, and that the cause of this was “that the mine of invention was exhausting itself” (244). There may be additional (biographical) proof for this argument, but I do not find the conclusion based on the table referred to convincing. Why should we assume an author’s creative process to run on undisturbed in a linear fashion, in which every 10 page section always takes the same amount of time to write? Furthermore, when a reader reads a literary text, he is unable to judge how long it took the author to produce it. All that really matters for the reader is what the text can offer him, and to let it ‘speak for itself’. The message the text conveys to the reader is not limited to discrete details, but the totality of its ‘information’, and the patterns that can emerge from the nonlinearity of the text.

To let the text ‘speak for itself’ is also important for my overall claim in this dissertation that literary texts can successfully be considered as nonlinear patterns. It is my view that nonlinearity is not restricted to

literary texts directly influenced by or produced in the era of chaotics, which is the case with *Transparent Things* and *Travesty*. On the contrary, nonlinearity is a general characteristic of complex literary texts,<sup>7</sup> and it calls for certain iterative techniques of both reading and writing. I will start by looking at some typical features of *Tristram Shandy*, and what makes the novel a ‘complex, nonlinear system’.

## 5.1 Tristram’s Nonlinear Narrative

Reading *Tristram Shandy* for the first time is a baffling experience, due, I would suggest, first of all to the novel’s nonlinearity. The novel seems, at first, to have no story, no narrative motion along a line the reader can follow, no beginning and no end. But the problem is not one of lack but one of overabundance. There is no deficiency of meaningful components: there is excess of meaning, contributing to a very complex pattern. When the elements in this unusually complex system start to interact, order cannot prevail. Instead it must give space to nonlinearity, which is order and chaos combined.

“The difficulty,” Fluchère notes,

is not that there is no story, but that there are several. The themes are impossible to enumerate, the spatial dimensions fluctuate, the temporal modes are shifting and ambiguous, the characters all equally significant or insignificant. The story is presented in bits, discursively, with inexplicable interruptions, and *no definite plan* emerges. Which of the two or of the three is the most significant: Tristram, his father, or his uncle? (31, emphasis added)

Here Fluchère is aware of the abundance of elements, but laments the lack of a ‘definite plan’, meaning, I take it, ‘no visible pattern’. The pattern he expects to find does exist, but it is far too complex to be so easily perceived. Had there been one clear story-line, a clear, all order linearity

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<sup>7</sup> As discussed in my introduction (Chapter 1), I admit that some texts are more typically nonlinear than others.

could be maintained, but the great complexity of elements in the novel makes this impossible. As illustrated by the two combined pendulums,<sup>8</sup> two simple forces linked in one system result in a movement along a track impossible to predict. In *Tristram Shandy* there are not just two, but many interacting forces. We shall examine this interaction, but let us first chart some of the separate elements of the novel. The textual elements can be grouped into categories in at least two different ways: according to form, as defined above, into verbal and extra-verbal; and according to content, into main story and digressions. I will start by considering chiefly the verbal elements of the main story.

The main story is that of the title: Tristram's attempt to relate his life and his opinions. His story of himself starts *ab ovo* and contains so many details and is so often interrupted that Tristram soon realises that his life runs on faster than he can write about it. One year after he commenced his project he has only managed to cover about one day of his life. Tristram's calculation is that "at this rate I should just live 364 times faster than I should write—It must follow, an' please your worships, that the more I write, the more I shall have to write" (342/286). And the more the writer writes, the more there is for the reader to read, as the two are in the project together. Tristram explains that writing

is but a different name for conversation: As no one, who knows what he is about in good company, would venture to talk all;—so no author, who understands the just boundaries of decorum and good breeding, would presume to think all: The truest respect which you can pay to the reader's understanding, is to halve this matter amicably, and leave him something to imagine, in his turn, as well as yourself. (125/127)

As with *Transparent Things* and *Travesty*, the reader is assigned an active and very important role in the process of the narrative, and throughout all of it the narrator draws the reader's attention to the process of writing, and how it is carried out.

In addition to Tristram, two characters are treated fully in the

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<sup>8</sup> See Chapter 1, Iteration.

novel: Tristram's father, Walter, and his Uncle Toby. Walter's story and Toby's story can be seen either as parts of Tristram's main story or as separate ones. Tristram is at all times the sole narrator and, as Robert Gorham Davis points out, "[w]e never go into the minds of Walter Shandy and Uncle Toby; we know their thoughts only from what they say and do" (24). Walter's story is largely that of his complicated learned theories. He seems constantly to be building elaborate intellectual constructions, designed to shape and control the world in which he lives. The philosophers and other thinkers contributing to Walter's theories are as real to him as the persons of his own household. Uncle Toby also lives in a world of his own, and has, as Jean-Jacques Mayoux notes, "left his own past behind without returning to a present of his own" (6). Toby lives in his world of memories—memories of warfare and military campaigns. His story is in itself very complex, with plenty of detailed descriptions of campaigns and fortifications, and full of the terminology of warfare. This complexity is further increased by the appearance of Widow Wadman on the scene, which exposes Toby to a new kind of attack for which he is less prepared. The lives of Tristram, Walter and Toby are separate but interlinked, and their stories can be seen as jointly forming the basic structure of the narrative. The pattern of this basic structure is further complicated by constant movements of the narrative backward and forward both in time and space, and also from one character to the other. Many digressions from the already tortuous story line further increase the complexity of the total pattern of the narrative.

"Digressions," Tristram declares, "incontestably, are the sunshine;—they are the life, the soul of reading;—take them out of this book for instance,—you might as well take the book along with them" (81/95). So to Tristram the digressions are absolutely essential to the narrative. The question is what function they have for the narrative development. William Bowman Piper analyses Tristram's intention:

To discover Tristram's intention in producing his digressions we must study his manner of defining and relating them. It will simplify this study to group the digressions according to their general uses: there are

(1) the explanatory digression, by which Tristram *helps his audience to understand his story and to see it more clearly*, (2) the opinionative digression, by which Tristram derives from his story and from his telling of it lessons on life and literature of general value to his audience, and (3) the interlude, which has no relationship to Tristram's story except to punctuate its major parts and by which Tristram settles, as he would put it, accounts with his audience." (65, emphasis added)

Piper's analysis attempts to create more order in the complex pattern of the novel by claiming that Tristram adds his digressions to help his reader 'understand' and 'to see it more clearly'. With this I only partly agree, and from my chaotic perspective I would rather claim the opposite: Tristram wants the narrative to become more complex and unpredictable.

One important reason for Tristram's profuse use of digressions is to advance the unpredictability of the text. By inserting all his digressions Tristram adds further narrative elements to the narrative pattern: new forces are added to the complexity of the narrative design. As the narrative oscillates between the various main stories and the various digressions, the path gets increasingly complex and nonlinear. A curve graphically representing this path would be highly irregular and very far from the straight line that Tristram mockingly claims to be the conventional ideal for story-telling (571/454). Far from following a clear straight line the development of the narrative becomes increasingly complex and unpredictable. This unpredictability is of vital importance to Tristram, and he prides himself that his reader has never been able to tell "what was to come in the next page" (89/101). If the reader could guess what would come next, Tristram would "tear it out of the book" in the same way that he would throw away a book lacking the digressions (89/101). Rather than giving the reader an easily digested, simplified straight story, the shape of the narrative is designed to be nonlinear and chaotic. This calls for a very active contribution from the reader.

Another reason for the reader's difficulty in understanding the text is the ambiguity and incompleteness of language. Tristram hints at the source of this uncertainty, "and a fertile source of obscurity it is,---and ever will be,---and that is *the unsteady uses of words* which have

perplexed the clearest and most exalted understandings” (100/108, emphasis added). Ideas and emotions especially are often far too complex to be expressed in words. When told that Tristram’s brother, Bobby, is dead, Trim cannot express his grief just verbally; he must supplement it by other means to be able to capture the capriciousness of life and the abruptness of death:

Are we not here now, continued the corporal, (striking the end of his stick perpendicularly upon the floor, so as to give an idea of health and stability)—and are we not—(dropping his hat upon the ground) gone! in a moment!—’Twas infinitely striking! *Susannah* burst into a flood of tears.—We are not stocks and stones.—*Jonathan, Obadiah*, the cook-maid, all melted. . . . —”Are we not here now, —and gone in a moment?”—There was nothing in the sentence—’twas one of your self-evident truths we have the advantage of hearing every day; and if *Trim* had not trusted more to his hat than his head—he had made nothing at all of it.

———”Are we not here now;”—continued the corporal, “and are we not” —(dropping his hat plumb upon the ground—and pausing, before he pronounced the word)——”gone! in a moment?” The descent of the hat was as if a heavy lump of clay had been kneaded into the crown of it.—Nothing could have expressed the sentiment of mortality, of which it was the type and fore-runner, like it,—his hand seemed to vanish from under it,—it fell dead,—the corporal’s eye fix’d upon it, as upon a corps,—and *Susannah* burst into a flood of tears. (431-2/ 356-7)

‘There was nothing in the sentence.’ Just through words this strong emotion could not be expressed. Here we have at least three layers: sentiment, gesture and verbal expression. Since the turmoil of sentiment is too complex for ordinary language to communicate directly, the narrator has to rely on describing a gesture expressing the sentiment.<sup>9</sup>

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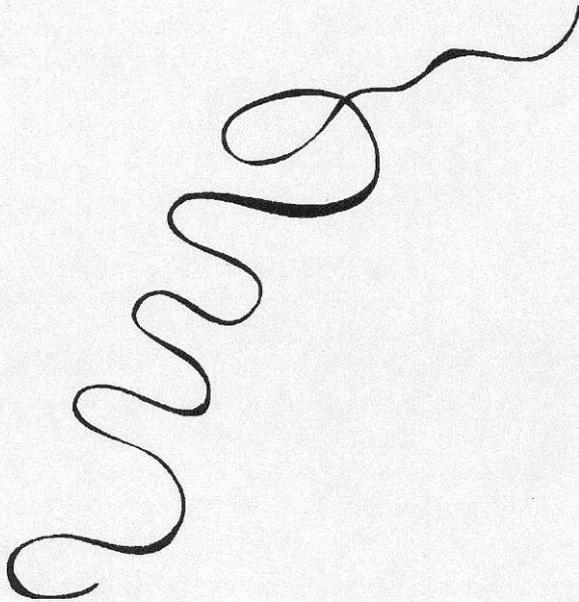
<sup>9</sup> This section could also be seen as illustrating ‘the man of sentiment’, so fashionable at the time (the eighteenth century). By displaying his feelings of compassion and sentiment, a man could demonstrate his high moral quality. Being an inner quality, this ‘sentiment’ had to be expressed indirectly, often, as frequently demonstrated in Sterne’s *A Sentimental Journey*, by a generous donation to a person

A similar instance is when Trim explains to Toby the preciousness of freedom, which Toby might well be about to lose because of Mrs. Wadman:

“Nothing, continued the Corporal, can be so sad as confinement for life—or so sweet, an’ please your honour, as liberty.

Nothing, Trim——said my uncle Toby, musing——

Whilst a man is free——cried the Corporal, giving a flourish with his stick thus——



A thousand of my father’s most subtle syllogisms could not have said more for celibacy. (743-4/575-6)

Here again we have three layers: the idea (of freedom) and a gesture

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in need. See for example Robert Markley, “Sentimentality as Performance: Shaftesbury, Sterne, and the Theatrics of Virtue,” *The New Eighteenth Century: Theory, Politics, English Literature*, eds. Felicity Nussbaum and Laura Brown (New York: Methuen, 1987), 210-307.

resulting in an image. Words are supplemented with an image because words are not enough. Thus, in questioning the relevance of the written words of the text, the narrator is opening up for the complementing extra-verbal elements of the story.

The extra-verbal elements in *Tristram Shandy* are many and varied: there are dashes of varying lengths, crosses, and asterisks. There are blank, black, marbled or missing pages. There are textual gaps, missing or misplaced chapters. While the verbal elements can be read out loud or told orally, the extra-verbal elements rely heavily on print. The interpretation of these extra-verbal elements is, as Peter de Voogd puts it “a lexical and visual guessing game” (“*Tristram Shandy* as Aesthetic Object” 387). Unfortunately, in most modern popular editions many of these elements are distorted, as de Voogd shows:

*Tristram Shandy* is one of those novels where blanks are as meaningful as text. Each page is a living unit, each new page a visual surprise. Any modern edition in comparison is drably uniform, its type area too large and its type too small to be as flexibly versatile as Sterne’s twenty-odd Pica lines per page. (387)

Naturally, the impact of the extra-verbal elements depends on how they are printed. This means that the choice of edition is of great importance, especially, as we shall see, because there are strong links between the verbal and extra-verbal elements of the novel: they are, to use one of de Voogd’s expressions, “co-existential,” and ultimately co-dependent.<sup>10</sup>

As we have seen, the narrative constantly oscillates between the different verbal and extra-verbal elements in an unpredictable way, resulting in a chaotic, nonlinear, pattern. On its own, every entity in this pattern is simple and linear, but together they form a chaos, written to ‘halve this matter amicably’ between writer and reader. *Tristram* often

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<sup>10</sup> de Voogd, *Word&Image* 4.1, 384: “[T]he closest relationship between a word and an image is a ‘co-existential’ one, when the text’s verbal and visual elements are so intimately interwoven that they form an aesthetic whole. The text and picture cannot be divorced from one another without serious loss: the picture *is* the text, the text the picture.”

refers to his writing in terms of “painting” and also claims that “to write a book is for all the world like humming a song” (374/313). A painting can hardly be enjoyed or ‘understood’ if every little dot is looked at separately, and the effect of a song depends entirely on the fact that the different elements, the tones, vary and that they function together. In the same way, a chaotic reading must be holistic in the sense that the totality of the complexity has to be acknowledged. From a chaotic viewpoint I can only partly agree with Helen Moglen’s description of *Tristram Shandy* as a “strange rambling work that hides its purpose and unity beneath a cloak of chaos and confusion” (59). A chaotic reading acknowledges both chaos and confusion, but sees the chaos of the narrative as something significantly different from a mere surface ‘cloak’, and the ‘unity’ as something very complex and not so easily accessible. Thus, the form of the novel is chaotic, and so is the world described by Tristram.

## 5.2 Tristram’s Unpredictable World

The world depicted in *Tristram Shandy* is unpredictable and impossible to control. Like Hugh Person and the narrator of *Transparent Things*, most of the characters in *Tristram Shandy* exert themselves to master the portion of the world they find especially important. The message of the novel, however, is clear: control is impossible and planning does not pay. The more you try and the more you plan, the more you lose control. The chaotic complexity of the world according to Tristram is very difficult to understand fully. As Tristram declares,

we live amongst riddles and mysteries—the most obvious things, which come in our way, have dark sides, which the quickest sight cannot penetrate into; and even the clearest and most exalted understandings amongst us find ourselves puzzled and at a loss in almost every cranny of nature’s works. (350/292)

Tristram’s world is complex and difficult to understand, but all parts are not equally important to all its individuals. Therefore the

characters in the novel limit their attempts at controlling to those areas that to each of them are of particular importance. These areas of interest develop into hobby-horses, as K.G. Simpson notes:

Walter's dogged pursuit of Truth down the more arcane corridors of learning; Toby's re-creation of battles in miniature; Tristram's attempts (like everything else, against all odds) to relate his life and opinions; and, being conditioned by the nature of the vast majority of the novels, the reader's persistent attempt to read *Tristram Shandy* like a conventional novel: each of these is a hobby-horse. (154-5)

All the main characters have their particular hobby-horses. Walter is constantly theorising and planning. Through his constructions, his learned theories about noses, names and other things, he strives to predict and ultimately control life. In spite of all his efforts, none of his constructions gives him the control over life that he seeks. Toby's constructions are both physical and mental. His model miniature fortifications are his instruments to re-create and re-live his military life. With facts from newspapers about contemporary genuine battles he can playfully but earnestly execute sieges and other military operations. Toby also constructs a male world of his own. As Ruth Perry argues, Toby's "fortifications model his sexual reality: in the excitement of firing the cannon, his partnership with Trim, and in the creation of a womanless world" (34). The control he desires is severely challenged, as both his physical and mental fortifications are soon to come under heavy attack. Tristram tries in vain to control his construction, his book, and complains that he is not in control: "Ask my pen,—it governs me,—I govern not it" (500/403). Tristram can initiate processes, but he cannot control more than the initial steps. Mrs Shandy's special interest is to safeguard the conditions of her own 'laying in': "My mother was to lay in, (if she chose it) in London" (45/68). By carefully constructing her marriage settlement she attempts to master her situation, but Mrs Shandy too underestimates the complexity of the world and fails to master her life. All these characters experience difficulties in controlling their particular area of interest, and the same destiny will befall the reader if he persists in reading Tristram's story in the conventional way. If he

does, he will also soon experience the lack of control that is such a prominent feature in *Tristram Shandy*.

*Tristram Shandy* presents a world where incapacity and impotence are common conditions. Sexual potency is questioned for all three of the Shandy men and also for the animal males of the story. Dennis W. Allen remarks:

*Tristram Shandy* is obsessed not simply with sex but with sexual dysfunction. From Tristram's accidental circumcision to the failure of the Shandy bull, the threats of castration and impotence are so pervasive in the text that they come to stand as emblems of the human condition, metaphors of the inability of the novel's male characters to deal with the world. (654-5)

In the logic of the novel, Tristram's near castration as a boy seems to open to doubt his potency as a man. Also worthy of note is when Tristram, in Allen's words, "rejected Nanette's offer to sport with her on the plains of Languedoc. Repelled by the Freudian slit in her petticoat, Tristram decides instead to write, and the episode recalls not only Tristram's impotence but the activity of writing as a compensation for such impotence" (664). Toby's sexual capacity is questioned because of his war wound. He received his wound at Namur, which, as Peter J. de Voogd suggests, "might be a pun on 'ne amour' or on 'no more'" (388). Walter's potency is questioned on the grounds of the time for Tristram's birth and other hints at bastardy. The date for Tristram's conception is given as 25 March, while that of his birth is 5 November. This means that barely eight months had passed between the two dates and not nine as Tristram claims:

On the fifth day of *November*, 1718, which to the æra fixed on, was as near nine kalendar months as any husband could in reason have expected—was I *Tristram Shandy*, Gentleman, brought forth into this scurvy and disasterous world of ours. (8/40)

As so often in *Tristram Shandy*, a reassurance that there is nothing to doubt—generates doubt. Melvyn New maintains that, "There are, to be sure, a good many hints of Tristram's illegitimacy throughout the work,

some of them gathered by Hay.”<sup>11</sup> Two instances of these hints at bastardy use heraldic symbolism.

It was Walter’s (and thus Tristram’s) belief that in heraldry bastardy was indicated by a *bend sinister*—a band drawn from the top left corner of a shield to the bottom right (as seen from the standpoint of the bearer); while the common diagonal band on a shield was the opposite, a *bend dexter*.<sup>12</sup> Therefore Walter is enacting a sign of bastardy when “taking his wig from off his head with his right hand, and with his *left* pulling out a striped *India* handkerchief from his right coat pocket” (187/172). Tristram adds “—Now, in this I think my father was much to blame; and I will give you my reasons for it,” but the rather long-winded explanation that follows, including the information that at the time “*Coat pockets were cut very low down in the skirt,*” does not say straight out why his father was so much to blame (188/173). The reader gets a hint, though, a few hundred pages later when Tristram relates the mistake made by the left-handed coach-painter, “at the time my mother’s arms were added to the *Shandy*’s, when the coach was repainted upon my father’s marriage, . . . instead of the *bend dexter*, which since *Harry the Eighth*’s reign was honestly our due—a *bend sinister*, by some of these fatalities, had been drawn quite across the field of the *Shandy*-arms” (372-

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<sup>11</sup> Melvyn New, The Notes, *The Life and Opinions of Tristram Shandy, Gentleman*, by Laurence Sterne, eds. Melvyn New and Joan New, vol 3 (UP of Florida, 1978) 52. [New’s reference is to John A. Hay, “Rhetoric and Historiography: Tristram Shandy’s First Nine Kalendar Months,” in *Studies in the Eighteenth Century II* (Toronto: University of Toronto Press, 1973) 73-91.]

<sup>12</sup> New, The Notes, 321: “In heraldry, the *bend dexter*, is the common diagonal band drawn across the shield from the top left-hand corner (looking at the shield), or *dexter chief*, to the lower right-hand corner, or *sinister base*; when the band is drawn in the opposite direction, i.e., from the *sinister chief* to the *dexter base*, it is called the *bend sinister* and is said to indicate bastardy.” See also Michael J. O’Shea, “Lawrence Sterne’s Display of Heraldry,” *The Shandean: An Annual Devoted to Laurence Sterne and His Works* 3 (1991, Nov): 61-69.

3/311). Walter refuses to go in the coach, and strengthens the suspicions of bastardy and adultery by mentioning his great aunt Dinah<sup>13</sup> and the period during which he was incapacitated by Sciatica, nine months before Tristram was born. This last instance is also noted by Lila V. Graves, pointing out that, “[s]uffering from sciatica during what appears to be the actual time of Tristram’s conception, Walter is probably a cuckold . . . .” (262). To doubt Walter’s potency and his fatherhood is to doubt the position he claims for himself as the true master of his own family, as well as his ability to control the complexity of his world.

To me this illustrates one version of *literary chaos* (the nonlinearity of the literary text), how a very complex pattern of meaning gradually builds up through many iterations, and how hints from the narrator are introduced to guide the reader’s imagination, as the narrator in *Travesty* plans to guide Honorine, towards certain conclusions. The previous paragraph is a simplified ‘map’ of some of the complexity of the novel, a ‘map’ constructed through unfolding<sup>14</sup> and combining elements spread out in the text over at least 500 pages. Some of the most important elements are ‘Walter pulling out his handkerchief’, ‘Mrs Shandy’s arms on her coach door’, ‘Walter’s Sciatica’, ‘the date of Tristram’s birth’, and ‘Aunt Dinah’s ‘dilemma’. These items are linked by the mental/visual images they produce, by their respective placements in the text, and/or as the result of calculations and comparisons. In other words, to be able to construct a pattern of meaning and signification, the reader must be very alert to details and be prepared to iterate the text, allowing the pattern to emerge. Naturally, other elements influence the formation of this pattern too, and the individual pattern discussed here is just one in a multitude of patterns juxtaposed with or superimposed on the complexity of the text as a whole. Furthermore extra-textual elements influence all the patterns from outside. As a result of the reader’s efforts, in this case meaning

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<sup>13</sup> Aunt Dinah “was got with child by the coachman” (658/517).

<sup>14</sup> Cf. the unfolding we have noticed in *Transparent Things*.

appears out of chaos, questioning Walter's potency on many levels.

For all the men of the Shandy family potency is called into question, as is the ability of all the characters to gain control via their hobby-horsical constructions. All attempts by these characters to build ordered systems are interrupted. As Bruce Stovel has noticed, "the book opens and closes with an interruption, and Tristram advances his story through every imaginable kind of interruption; . . . Tristram's novel begins with (in a punning sense, at least) *coitus interruptus* and proceeds by *discursus interruptus*" (120-1).

The impotence of the Shandy men and the characters' inability to gain and maintain control seem to spill over on to communication generally and to the role of language. We have already noted "the unsteady uses of words," which makes all communication so hazardous (100/108). Sometimes the inability to communicate is due to the polysemous quality of single words, sometimes to other causes. When Tristram's nose has been crushed at his birth, Dr Slop intends to repair it by making a "false bridge with a piece of cotton and a thin piece of whalebone" (253/222). The word 'bridge' leads Toby to think of a model bridge he needs for his model fortifications. Here Toby is not just listening but also adding from his experience and area of interest. Communication breaks down as a result of Toby's mistake of adding 'the wrong thing'. The same kind of mistake is made by the curate responsible for Tristram's christening, resulting in Tristram getting the wrong name. In deciding what name to give to the boy the curate adds from his own experience, and finds it must be *Tristram* because "'tis my own name" (344/288). A similar situation is when Walter fails to understand that his son is dead. The word 'gone' is of course easy enough to misunderstand, but here not even the quite plain "he is dead" succeeds in conveying the message to Walter (417/346). Shklovsky writes that the author "here has used death to put his characters at 'cross-purposes,' a common literary device using two persons talking about two different things and thinking they are talking about one and the same thing" (44). On another occasion Walter

and Toby talk about two different persons, thinking they are one and the same: “—He was a very great man! added my uncle *Toby*; (meaning *Stevinus*)—He was so; brother *Toby*, said my father, (meaning *Piereskus*)” (493/398). When Mrs Shandy overhears a fragment of a conversation, she jumps to the wrong conclusion when she hears her husband say:

“—I have friends—I have relations,—I have three desolate children,”—says *Socrates*.—

—Then, cried my mother, opening the door,——you have one more, Mr. *Shandy* than I know of.

By heavens! I have one less,—said my father, getting up and walking out of the room. (442/364)

Walter’s discussion with his wife about whether they should put Tristram “into breeches” illustrates the fact that failure of communication is not always solely a matter of individual words (526/422). Here the problem seems to be a petrified dysfunctional pattern of conversation: Tristram informs the reader that “a discourse seldom went on much further betwixt them, than a proposition,—a reply, and a rejoinder; at the end of which, it generally took breath for a few minutes, (as in the affair of the breeches) and then went on again” (569/452). Obviously, all Walter’s theories depend on words and language. In this context his theory of names is of particular interest because of its twofold dependence on words: to communicate its idea (theory is language) and to influence the world (names are words). Walter’s theory of names expresses, as Allen observes, the “radical view that names determine the character of the individual, that language can magically control reality” (653). As we have seen, the uncertainty of language adds to the unpredictability and nonlinearity already developed from the interaction of the many separate elements.

Mrs Shandy’s failure in the marriage settlement is also a stumble in the mazes of language (40-6/65-8). This document is a construction of words, built of guarded formulations and tautological repetitions, with the

intent of giving her control over her life and in particular to safeguard the conditions of her 'laying-in'. With the help of her lawyer she makes every effort to cover every possible situation, but she cannot control life either. When the day comes, she has herself rendered the document useless, and has to give birth to the baby at home instead of in London, with disastrous results. Thus, for all four characters, their success at communicating and controlling their existence declines from bad to worse. One reason for their failure to communicate is, as Allen puts it, "[t]he inability of language to reflect reality, . . . a form of impotence which means that the writer or speaker must almost inevitably lose control of his impossible medium, must himself experience an impotence in his attempts to express 'his true intent and meaning'" (659).

In this environment of inept communication, Trim's method of reaching his audience (as at Bobby's death) is an exception. One reason for his success is that he does not rely solely on 'pure' language and words ('verbal elements'), but uses other means in addition ('extra-verbal elements'). Trim's technique is similar to the one used by Tristram writing his book. What they both do is to offer a chaotic pattern, and to leave to the reader/listener an important part in a mutual process leading towards some kind of order and meaning. But no human being can create order by himself, nor have full control.

The main reason why Walter's theories all collapse and the others largely fail in what they are doing, derives from the 'sensitive dependence on initial conditions', characteristic of complex systems. In order to be successful at predicting the outcome of a complex process, chaos informs us, you need to be aware of and control *all* the factors that could possibly play a part, and know in the smallest detail how all these factors will interact. This kind of detailed knowledge of 'initial conditions' is of course impossible. The complexity of Tristram's world is unpredictable like the weather, "as our air blows hot and cold,—wet and dry, ten times in a day, we have them in no regular and settled way" (232/206). The weather can with reasonably satisfying results, be predicted for only

a small area and for a short period of time; everything else is just guesswork (Gleick 13, 20-1). Walter would be able to predict, and possibly gain control, were his theories complete to the smallest detail; but, of course, they can never be. In other words, none of the characters (and no one else for that matter) can control all the input data of a complex system in minute detail. As an illustration, Tristram's misfortunes start even before he is born—at conception. Because the initial conditions at this important starting-point fail to be right, Tristram's future takes a turn for the worse.

The difficulty of determining *all* the initial conditions is aptly demonstrated in *Tristram Shandy* by the episode where Trim is trying to relate to Uncle Toby “The Story of the king of Bohemia and his seven castles” (683-93/534-42). Trim is constantly interrupted by Toby, who wants him to be more precise about time (date and year) and place (geography). As Trim does not appear to be able to be sufficiently precise, Toby suggests a simplified version of the story, as “a story passes very well without these niceties, unless one is pretty sure of ‘em——Sure of ‘em! said the corporal, shaking his head——” (687/537). Naturally, Trim shakes his head. He cannot possibly be sure of all the details concerning time before he starts, or of geography, even if “geography, ‘tis of absolute use to him [as a soldier]; he must be acquainted intimately with every country and its boundaries where his profession carries him” (688/538). Time and place are just two out of many variables to be taken into consideration for a fairly simple account, and infinitely more would be needed to control full-fledged, complex life.

Every attempt by the characters to create order is seen to fail, as all their constructions disintegrate. The collapse of Mrs Shandy's construction, the marriage settlement, leads to the series of disasters that befall Tristram, as Walter's theoretical structures are seen to dissolve one at a time. His intellectual constructions cannot face a confrontation with the complexity of life. To save what can be saved, Walter starts to work on a new construction—he starts writing his “TRISTRA-*pædia*, or system

of education for” Tristram, who informs his readers:

I was my father’s last stake—he had lost my brother *Bobby* entirely,—he had lost, by his own computation, full three fourths of me—that is, he had been unfortunate in his three first great casts for me—my geniture, nose, and name,—there was but this one left; . . . My father spun [his new work], every thread of it, out of his own brain,—or reeled and cross-twisted what all other spinners and spinsters had spun before him, that ‘twas pretty near the same torture to him. (445/366)

Unfortunately, Walter’s new construction also breaks down because while he is busy writing this handbook, the practical responsibility for the boy’s upbringing is placed in the hands of Tristram’s mother and other people. In spite of possibly advantageous points, Walter’s theories all collapse when they are confronted with the world they are supposed to control.

Toby’s physical fortifications, built in order to be ritually destroyed, founder before the time is due, and their collapse has been imminent from the start. The purpose of military equipment, like guns and cannons, is destruction: to break down, to reduce, to cause to collapse; and Toby’s model fortifications in particular were built to be demolished. The threats to the fortifications and to his male world are often female intruders. Trim explains that when he was “shewing Mrs. *Bridget* our fortifications,” a bridge “was broke down betwixt us, and splintered all to pieces” (248/218). The maze of language, bursting with phallic symbols and sexual innuendos so typical of Tristram’s story, lays bare also this portion of the novel for alternative interpretations. In connection with Trim’s report about the breaking of the bridge, there are descriptions of ‘breaking’, ‘limbs’, ‘battering-rams’, ‘catapultæ,’ and a falling lady. The account could well be a covert reference to a defloration—yet another collapsing structure. When a cow<sup>15</sup> breaks into the fortifications and causes damage, “*Trim* insists upon being tried by a court-martial,—and the cow to be shot” (278/240). Still more death and destruction are added to the pattern of the story.

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<sup>15</sup> Another female onslaught!

The structure of Toby's mental fortifications, his illusions, are seen to be devastated in the last pages of the book, when Trim explains to Toby that Widow Wadman wants to pinpoint his wound on his body, not on the map. The threat to Toby's world is again female, and the problem starts when, as Michael Clark points out, "[t]he widow, whose title inscribes her lack within her name, first enters the novel as the very embodiment of desire, its perfect signifier" (148). Toby's desire makes him fall in love, and in Tristram's world 'love' is a structure with physical properties:

My uncle *Toby fell in love*:

—Not that the phrase is at all to my liking: for to say a man is *fallen* in love,—or that he is *deeply* in love,—or up to the ears in love,—and sometimes even *over head and ears in it*,—carries an idiomatical kind of implication, that love is a thing *below* a man: (565/450)

Love is here depicted as a structure, a spatial entity with vertical and horizontal dimensions. There are gaps one can fall in and out of, and as Clark notes, "[t]he gap in the signifying chain through which Toby has fallen is Widow Wadman . . ." (149). When the widow enters the story, it is as a gap, as an empty page, on which, as instructed by Tristram, the reader is to draw Mrs Wadman's picture (567/451).

All these collapsing structures indicate increasing entropy, the ongoing process towards increasing disorder and randomness.<sup>16</sup> *Tristram Shandy* demonstrates how energy is constantly used in attempts to build structures, but energy is inevitably lost without any lasting results when the structures crumble. What is drawn here is a picture of the ultimate end, the final death by entropy—'heat death'. Walter, at least, seems to be aware of the ultimate end of the world:

What is become, brother *Toby*, of *Nineveh* and *Babylon*, of *Cizicum* and *Mitylenæ*? The fairest towns that ever the sun rose upon, are now no more: the names only are left, and those (for many of them are wrong spelt) are falling themselves by piecemeals to decay, and in length of

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<sup>16</sup> See discussion of 'entropy' and 'heat death' in Chapter 4, Design and Debris.

time will be forgotten, and involved with everything in a perpetual night: the world itself, brother *Toby*, must—must come to an end. (422/349)

So, the ‘decay’ is a constant process, leading to the end, to ‘a perpetual night’. In this case, Walter, so often proved wrong, is supported two centuries later by scientists, to whom entropy is indicative of time (the ‘arrow of time’) through a process ultimately leading to ‘heat death’. A milder form of ‘perpetual night’ is the very stable *White Earth* climate. The main wonder among scientists is that this climatic predicament has not materialized already.<sup>17</sup>

In the midst of all this annihilation Tristram’s large project of writing his ‘life and opinions’ threatens to disintegrate. His project appears to move in circles rather than forward, as his life runs on faster than he can write about it. One threat to his project is writing itself. ‘Preferred writing’, aiming at control, seems to signify a concentration on one, or possibly two, main stories, and the removal of digressions.<sup>18</sup> The more that is taken away from the narrative path, and the more concentrated it becomes, the more it resembles a straight line, analogous to the horizontal immobile digital band on the monitor screen of the intensive care ward indicating death. However, Tristram’s writing differs considerably from this ‘ideal’. Because of all the temporal and spatial bouncing and constant digressions, the path of Tristram’s story is nowhere near the ‘ideal’ straight line (571/454). His writing preferences are quite

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<sup>17</sup> Gleick, 170: “the White Earth climate: an earth whose continents are covered by snow and whose oceans are covered by ice. A glaciated earth would reflect seventy percent of the incoming solar radiation and so would stay extremely cold. . . . Computer models have such a strong tendency to fall into the White Earth equilibrium that climatologists find themselves wondering why it has never come about.”

<sup>18</sup> ‘Preferred writing’ is my own nonce term, deduced from the ‘face value’ of the text of *Tristram Shandy* (571/454). This writing is ‘preferred’ because it is linear, predictable and controllable. Tristram only mocks this ‘ideal’, as his writing is far from linear.

different:

Digressions, incontestably, are the sunshine;—they are *the life*, the soul of reading;—take them out of this book for instance,—you might as well take the book along with them;—one *cold eternal winter* would reign in every page of it; restore them to the writer;—he steps forth like a bridegroom,—bids All hail; brings in variety, and forbids the appetite to fail. (81/95, emphases added)

Heat death, ‘one cold eternal winter’, is counteracted by digressions, but in an indirect way. The digressions add material and serve to increase disintegration and complexity. When complexity increases, it makes room for chaos, which is a prerequisite for a new sort of order that is governed by rules more profound than ordinary human rules. Elizabeth W. Harries notes that the author “forces us to contemplate a different kind of order – an order not governed by ‘any *man*’s rules’ but by rules more inscrutable and divine.”<sup>19</sup> The new order is created through self-organization from chaos: meaning organizes itself and the novel is brought to life, as this order/meaning changes and develops into greater complexity. Human beings cannot create such complexity, but they can sometimes create conditions to promote it.

Digressions represent just one of the conditions in the novel that indirectly promote order, life and meaning. At first digressions contribute to the development of more nonlinearity, more chaos, which is iterated, re-read, by the reader; then meaning can emerge out of chaos through self-organization. The narrator uses a variety of techniques in his mission to prepare the narrative for the reader, and to make it possible for him to cooperate in the final part of the process of finding meaning. In the following section we will scrutinize some other techniques Tristram as narrator uses to bring forth textual nonlinearity, and to induce the necessary co-operation with the reader.

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<sup>19</sup> Harries 104 (Harries’s emphasis). She cites from *Tristram Shandy*, 5/38.

### 5.3 Tristram's Role as Narrator

Let us examine the multifarious role Tristram as narrator has assigned for himself and the techniques he uses. As narrator he is not only an initiator but also a designer of the machinery which is at work in the novel. He also prepares for the reader's contribution, by choosing and visualizing some simplified and fragmented elements of the chaos of the story in order to influence the reader's choices. His role as narrator is highly similar to that of the narrators of *Transparent Things* and *Travesty*, resulting in the same kind of 'design and debris'.

Tristram's role as initiator and his technique of taking one small step at a time give him some partial control over a process he can never fully master. His method is a combination of design and randomness,<sup>20</sup> by which he first determines a starting-point, some 'initial conditions', and then allows space for randomness to play: "I begin with writing the first sentence—and trusting to Almighty God for the second" (656/516). At first the process initiated by the simple starting elements results in a simple predictable pattern, but very soon the pattern gets more and more complex. The complexity leads to nonlinearity. Thus, Tristram the narrator soon finds himself in the midst of an unpredictable chaotic process, and his total control is lost: "Ask my pen,—it governs me,—I govern not it" (500/403). In order to influence the development of the story he must then make decisions as the writing process proceeds, and when "three several roads meet in one point" Tristram has to choose where he will take his story (245/215). There are many crossroads to pass before the story is told, and many choices to be made before it can be decided what kind of story it will become. Tristram's recipe appears to be: 'Make a start. Take small steps, and plan as you go along!' By taking a small step at a time, by both leading and being led by the process, the

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<sup>20</sup> 'Design and randomness' is another way to express 'design and debris'. In chaotics, both randomness and debris signify the *process* towards increasing nonlinearity, or chaos.

narrator grows increasingly aware of “how the plan follows the whole” (656/516). There exists a very complex plan, an underlying design, for the narrative, but the complexity of this structure is to a large extent caused by the process, rather than being the cause of it. Tristram depicts the framework of this complex process as a machine.

Tristram characterizes both the dynamics of his family and the function of the novel in terms of a machine—the ‘Shandy Machine’. This machine demonstrates how, through a combination of design and randomness, single simple forces can be joined and later produce an outcome of great complexity and nonlinearity. This is how Tristram describes his family:

Though in one sense, our family was certainly a simple machine, as it consisted of a few wheels; yet there was thus much to be said for it, that these wheels were set in motion by so many different springs, and acted upon the other from such a variety of strange principles and impulses,—that though it was a simple machine, it had all the honour and advantages of a complex one,—and a number of as odd movements within it, as ever were beheld in the inside of a *Dutch* silk-mill. (427/353)

The Shandy family is like ‘a simple machine’ consisting of ‘a few wheels’. This view of the world might ‘in one sense’ be described as a reductionist one. As Briggs and Peat explain:

Essentially reductionism is a watchmaker’s view of nature. A watch can be disassembled into its component cogs, levers, springs, and gears. It can also be assembled from these parts. Reductionism imagines nature as equally capable of being assembled and disassembled. Reductionists think of the most complex systems as made out of the atomic and subatomic equivalents of springs, cogs and levers which have been combined by nature in countless ingenious ways. (21-1)

Like a watch, the Shandy machine represents design and thus predictability, but the machine also accommodates ‘a variety of strange principles’ and has ‘the advantages of a complex one’. As with the egg-whisk, the simple design soon has to give space to complexity, leading to unpredictability and randomness (mixing and chaos).

The design of the machine epitomizing his work, his novel, seems

to be even less complex than that of his family:

the machinery of my work is of a species by itself; two contrary motions are introduced into it, and reconciled, which were thought to be at variance with each other. In a word, my work is digressive, and it is progressive too,—and at the same time. . . . I have constructed the main work and the adventitious parts of it with such intersections, and have so complicated and involved the digressive and progressive movements, one wheel within another . . . . (80-2/95)

The reader encounters here a combination of two simple, linear, motions: a combination that will very easily leave the linear for the nonlinear. It could be compared to a regular pendulum, connected to another regular

pendulum; a combination whose motion very soon turns irregular, nonlinear.

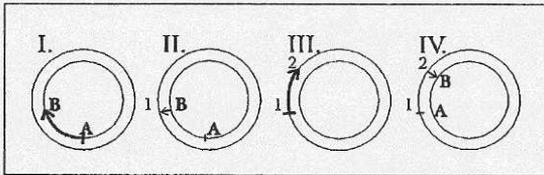


Fig. 1 *The Function of the Shandy Machine*

I take the Shandy machine to work like this (see fig. 1): There are two integrated wheels, one within the other, both operating independently. The narrative follows either the inner wheel (the events and ideas of the main stories), or the outer wheel (digressions). The inner wheel covers the cohesive time span of the narrated main stories; the outer wheel covers the same range, and in addition preceding and subsequent ‘events’. On both wheels different sections represent different coherent episodes. Such a section can be ‘read’ either from the beginning, or from any point within it, and finished at any point. Movements between the wheels can be made in either direction at any time. The leaving point on the inner wheel is usually also the returning point. Jumps can also be made within each wheel to give flashbacks and flashforwards. This function of the machine makes the narrative fragmented and its chronology sometimes confused.

One example of the confusing function of the machine is when the reader first meets Uncle Toby in front of the fire: “I think, replied my uncle *Toby*, taking his pipe from his mouth, and striking the head of it two

or three times upon the nail of his left thumb, as he began his sentence—I think, says he:——” (70/87). The reader is then made to leave Toby, to enter on a diversion, and to again return to him for one sentence. Toby still knocking out his pipe: “But I forget my uncle *Toby*, whom all this while we have left knocking the ashes out of his tobacco pipe” (72/88). The reader is again bounced onto a new diversion. In this fashion the story is constantly moving from one wheel to the other, from one story element to another.

By thus feeding into the machine elements of the main stories and the digressions, supplemented with the extra-verbal elements, Tristram is constantly initiating new sub-processes in the machinery, after which he ‘lets it alone’ in order to enable the increasing complexity to build up. He leaves room for his words to start interacting, just like uncle Toby, who “when he had told Mrs. Wadman once that he loved her, he let it alone, and left the matter to work after its own way” (786/603). Tristram’s combination of design and randomness, enables him to keep his promise to “lay open a story of the world you little dream of” (402/333).

To keep the initiative as narrator, Tristram also needs to provide some signposting to aid the reader’s perception and action. In this process he exercises certain techniques of visualization, aiming at handling the chaos of the story. To understand and recognize the narrator’s techniques, let us first (re-)examine a possible method of achieving a certain understanding of another form of chaos. As we shall see, this method, that includes fragmentation and iteration, is similar to the techniques used by Mo in *Rainforest* and other characters in the previous novels of this study, but perhaps most prominently by Hugh and the narrator of *Transparent Things*.

The chaos of Tristram’s story resembles the turbulence of flowing water. Gleick defines ‘turbulence’ as “a mess of disorder at all scales, small eddies within large ones. It is unstable. It is highly dissipative, meaning that turbulence drains energy and creates drag. It is motion turned random” (122). As an example, consider a small brook with a piece

of bark floating with the turbulence of the water, illustrating a very complex path. One quite general method of coming to grips with this chaotic pattern could be implemented here. The first step in examining the pattern of this turbulent flow would be to take snapshots of the brook and the piece of bark and then study these shots one at a time, concentrating on small portions of the whole.<sup>21</sup> It would be possible to simplify the turbulent motion even more by drawing diagrams of the movements of the piece of bark. If zooming in on details we would most likely be able to observe self-similarity, patterns recurring over scale. In other words, this method would consist of reducing the complexity by first freezing the motion, and secondly by documenting the pattern through graphic images, and thirdly by fragmenting the whole. The last step would then be to re-iterate the serialized fragments. These steps also summarize the technique used by the narrator of our story, as he provides visualization and prepares the reader for action.

In order to make the reader see the patterns, the narrator freezes or immobilizes moments, as Fluchère observes: "One can hardly avoid the comparison with a juggler, managing countless different objects, to which every moment new oddities are added, all bound by the laws of gravity, but which the will of the artist can apparently immobilize for seconds together before he sets them in motion again" (45). These immobilized 'snapshots' from the turbulence of the novel are presented as verbal or as extra-verbal images. The narrator draws the reader's attention to these immobilizations when he shifts from one fragment of the narrative to another, as when Uncle Toby's movement is frozen in the midst of his knocking out his pipe. In the same manner Mrs Shandy is left standing in the passage leading to the Shandy parlour, where "she listened with all her powers:—the listening slave, with the Goddess of Silence at his back, could not have given a finer thought for an intaglio" (426-7/352-3). The

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<sup>21</sup> The most rational method, of course, would be to use a film camera or camcorder.

lady is seen as if cut in stone or metal, and Tristram declares: "In this attitude I am determined to let her stand for five minutes: till I bring up the affairs of the kitchen . . . to the same period" (427/353). Here the narrative movement is frozen, and the action reduced to a petrified image. Through this technique of visualization the narrator has accentuated one fragment.

The narration of the novel is in fact usually fragmented and each individual episode of the story is rarely completed. Frequently, we just get a fragment of an episode only at the next moment to be rushed into something completely different. At the whim of the narrator, the reader can be hurled forward and given a glimpse of a 'future' event (as compared to the present of the story), or hurled back, perhaps to a continuation of a previous episode. To read the novel is to be tossed from one spatiotemporal fragment to another. Harries observes that "*Tristram Shandy*, as one of its earliest critics suggested, has 'more the air of a collection of fragments, than of a regular work.'"<sup>22</sup>

When this 'collection of fragments' is studied carefully, another interesting phenomenon, typical of nonlinear systems, appears: self-similarity. As we have seen, the term self-similarity denotes the repetition of the same pattern across scale; repetition of the pattern from the whole to parts and from one fragment to another.<sup>23</sup> The similarities on different scales in a system can be made apparent by zooming in and out. In *Transparent Things* we encountered the technique of zooming between narrative elements, objects, as a way of moving between narrative layers. In *Tristram Shandy* this 'zooming' is performed by using the extra-verbal elements. The narrator can zoom in and concentrate on just one sign, saying as much or more than words: For example, when Dr Slop crosses

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<sup>22</sup> Harries, 94, quoting John Ferriar, *Illustrations of Sterne* (1797; rpt. in New York, 1971) 4.

<sup>23</sup> Cf. Chapter 1, Introduction, Self-Similarity, and Chapter 4 on *Travesty*.

himself up pops a † (122/125). At Yorick's death Tristram zooms in even more, and gets a black hole (two black pages on each side of the same leaf of paper) (37-8/61-2). He can also zoom out, and switch to a larger scale, the whole of the narrative: The marbled page, says Tristram, is an emblem of the whole book, "(motly emblem of my work!)" (268-70/232-4).

By thus oscillating between scales, between different fragments and between fragments and the whole, the narrator constantly adds perspectives and demonstrates the increasing complexity and fragmentation of the work. As Harries notes, "the fragments could even be said to be miniatures of the novels in which they appear," or in terms of chaos theory, the story could be seen as self-similar (94). In this the novel mirrors a renewed contemporary interest in renaissance ideas, as Harries writes:

Friedrich Schlegel comments on this trend in 1798 in his *Athenaeums*-fragment 24: 'Many works of the ancients have become fragments. Many works of the moderns are fragments at the time of their origin.' These artificial fragments, like the artificial ruins that were constructed in many eighteenth century gardens, emphasize the interplay of *chance and design*, of the work of nature and the work of the artist.<sup>24</sup> (emphasis added)

The 'interplay of chance and design', of design and randomness, is, as has already been demonstrated, typical of nonlinear systems, and it is very much present in *Tristram Shandy*.<sup>25</sup> However, the power of the narrator's design is limited in that by himself, the narrator cannot create meaning; neither can the reader. But both are essential participants in the process

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<sup>24</sup> Harries 96. (Harries quotes Friedrich Schlegel, *Dialogue on Poetry and Literary Aphorisms*, trans. Ernst Behler and Roman Struc (University Park, Pennsylvania, 1968) 134.)

<sup>25</sup> Harries informs us: "Several art historians have pointed out the sudden reappearance of the 'image made by chance,' common in the workshop talk of the Renaissance but then apparently forgotten until the later eighteenth century." (Harries 99)

leading to meaning (meanings).

In short, the narrator's tasks in general and in *Tristram Shandy* specifically are to present, to evoke interest and to guide. He presents a story that is complex and chaotic by first feeding story elements into the 'machine' of the novel. The process of the 'machine' forces the many single simple elements to operate together, and linearity yields to nonlinearity. Harries points out that the author of *Tristram Shandy* "was alert to the central meaning of the *non-finito*, the way that an aesthetic of the unfinished leads to an aesthetic (and, ultimately, an ethic) of participation" (98). The resulting story is unpredictable, fragmented and full of interruptions and gaps, and calls for the reader's active participation.

The narrator's second task is to provoke the reader to share the responsibility for the story. The reader must be made aware that the narrator intends to "leave him something to imagine" (125/127), and that the unpredictability, the interruptions, and the gaps all are vital parts of the story. For the reader to be able to make his contribution, the narrative must be nonlinear and with gaps to be filled. The narrative is therefore more to the point if there are elements lacking, sometimes a whole chapter, as Tristram points out:

—No doubt, Sir—there is a whole chapter wanting here—and a chasm of ten pages made in the book by it—but the book-binder is neither a fool, or a knave, or a puppy—nor is the book a jot more imperfect, (at least upon that score)—but, on the contrary, the book is *more perfect and complete by wanting the chapter*, than having it (372/311, emphasis added).

Tristram's narrative is designed for shared responsibility. As I just noted, he assigns a marbled page as the 'motley emblem of [his] work!'. As Peter J. de Voogd explains: "During Sterne's lifetime marbling was done by hand, by a very few professional marblers . . ." ("Laurence Sterne, the Marbled Page and 'the Use of Accidents'" (284). De Voogd also points out "that not only are there two different marbled pages in each volume [volume Three of *Tristram Shandy*], but that every volume is different

from all other volumes too.”<sup>26</sup> This means that a marbled page is the only one of its kind, and, considering the process of this craft, it is determined but unpredictable, and in all its complexity it reminds us of Mandelbrot’s fractals.<sup>27</sup> So “without much *reading* [that means] *much knowledge*,” (268/232) it will not be possible for the reader to penetrate either the moral of the marbled page, or the novel, both of which share the same nonlinear characteristics: predetermination and randomness, or ‘design and debris’.

The third task the narrator must perform is to guide the reader through the maze of the narrative. Just to design the narrative and present it to the reader is not enough. In addition, the narrator needs to provide some signposting in order to influence the choices the reader will have to make on his way through the narrative. Like Honorine’s husband in *Travesty* and Hugh Person’s ‘spectral companions’ in *Transparent Things*, Tristram as narrator must guide his audience. Tristram informs the reader, that

for my own part, if I did not take heed to do more than at first, there is so much unfix’d and equivocal matter starting up, with so many breaks and gaps in it,—and so little service do the *stars* afford, which, nevertheless, I hang up in some of the darkest passages, knowing that the world is apt to lose its way, with all the lights the sun itself at noon day can give it—and now, you see, I am lost myself!—— (558/444, emphasis added).

So complex is the story that even the guide risks getting lost sometimes: No one has full control. (We are reminded of the spectral companions having problems with the narrative of *Transparent Things*.) ‘Nevertheless’, the narrator must make an attempt to guide. He does this

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<sup>26</sup> de Voogd 284. (It should be noted that this effect of the marbled pages is lost in most modern editions, where these pages are not marbled, but just the same printed image in each copy of the edition.)

<sup>27</sup> By ‘determined’ I mean that its shapes are restricted to the ‘rounded’ ones that are possible with the marbling technique. They are ‘unpredictable’ because of the random forming of the shapes.

by visualizing certain elements, and by giving the reader hints ‘in the darkest passages’. Sometimes the ‘hints’ and the ‘riddles and mysteries’ they are meant for are far from each other. The reader is given a chaotic pattern with hints spread out in the narrative, and ‘to imagine’ is not his only obligation.

## 5.4 The Role of the Reader

The reader of *Tristram Shandy* must adopt the role of an active co-operator; he cannot be a passive recipient because the structure of the narrative is not ordered and simple, and the meaning of the narrative is not served to the reader completed and ready-made. Neither can the reader be an independent creator of meaning. As Tristram emphasizes, he (Tristram) has left the reader a lot to imagine. Like an archaeologist studying a fragmented object, the reader must use the information he has received and to a certain extent supplement it with his imagination to fill the gaps and bridge the interruptions in the chain of the message. But just to imagine is not enough. To make his contribution towards the creation of meaning, the reader, like the narrator, has to use a number of strategies to deal with the chaos of the story.

The reader’s most important technique is to iterate, to re-read or ‘read over’, the text. Re-iteration is a necessary method for both author and reader, and meaning (order) is triggered by the two in co-operation out of the chaos of text. As Hayles points out, “In deconstruction, as in the science of chaos, iteration and recursion are seen as ways to destabilize systems and make them yield unexpected conclusions” (*Chaos and Order*, 11). The iteration of the text takes the reader backward and forward in the text. Reading backwards is not possible because of the sequential quality of texts, but the reader can ‘jump back’, and re-read earlier passages and then follow the text’s direction forward, called the

‘now’ direction in *Transparent Things*.<sup>28</sup> These operations are repeated. This reiterative motion through the text echoes the narrator’s technique, as described by Tristram: “when a man is telling a story in the strange way I do mine, he is obliged continually to be going backwards and forwards to keep all tight together in the reader’s fancy” (557-8/444). The narrator’s going backward and forward results in a folding of the elements of the narrative, and by reversing the process the reader can un-fold some of the complexity.

Throughout this iterative process the reader must reflect and draw on his previous knowledge, as well as add to it. In Tristram’s words, to get hold of “the deep erudition and *knowledge* which a book of this cast, if *read over* as it should be, would infallibly impart with them [its readers].—The mind should be accustomed to make wise *reflections*, and draw curious *conclusions* as it goes along” (65/83, emphases added). In the process the reader may find some of the hints put there by the narrator, sometimes far away from their ‘mystery’. Attempting to solve the ‘mysteries’, and to link the hints to ‘the right mystery’, the reader must reflect and draw his own conclusions. The hints are often themselves ‘mysterious’ and the reader should be aware of the risk, demonstrated by Toby’s mistake in connection with Dr Slop’s ‘bridge’, of adding ‘the wrong thing’.<sup>29</sup>

By using these techniques the reader is making his active contribution to the process of creating meaning. The reader alone does not create meaning, but contributes towards making a part of it perceptible. It is the nonlinearity, the chaos, of the text that makes this interactive or participatory process possible. The co-operation between reader and writer triggers a process that increases nonlinearity and thus prepares for self-organization from chaos, which brings order, meanings, out of the nonlinearity of the novel. *Tristram Shandy* is only one of many nonlinear

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<sup>28</sup> Cf. Chapter 3, The unpredictable world of *Transparent Things*.

<sup>29</sup> See section 5.2 (page 159).

texts suitable for this kind of analysis. What makes this novel exceptionally suitable in this context is its richness in imaginative elements and its continuous meta-commentary displaying and pointing to its own nonlinearity.

## 6 Conclusion

In this study my chief claim has been that literary texts can be successfully considered as nonlinear patterns. Describing complex literary texts in terms of nonlinear systems does not imply any kind of 'scientific, mathematical measuring' of exact properties of the text. Instead, it suggests that literary texts can be perceived in terms of very complex patterns, and that their complexity can fruitfully be described in terms of chaos theory. In other words, literary texts can be described in the same way and in the same terminology as other chaotic systems, for example the development of weather systems or the movement of two connected pendulums. The increasing complexity of literary texts can be observed when the simple elements of the text interact in various ways and at various levels. One basic level is the text's dependence on ambiguous language, what Tristram calls 'the unsteady use of words', and factors of narrative content and structure also add complexity to the pattern.

Like other nonlinear patterns, complex literary texts can also be perceived as fractal, fragmented and incomplete. They are often broken or folded in the sense that related elements and passages are split up and placed in different parts of the text. Sometimes interacting elements are close to each other and can immediately be connected by the reader to an ordered pattern of meaning. Other elements are far from each other in the text and require the reader's active participation in the iterative process of (re-)reading the text. Frequently the complexity of the text is further increased by its dependency on references to other texts and other external phenomena. Textual elements may also be missing, leaving gaps in the text, without giving references to other texts or other suggestions. Like other fractal shapes, texts are often self-similar, with repeating images on the same, or across scales. Texts can display outbursts of turbulence, when a seemingly stable order is suddenly lost to chaos.

Perceiving complex literary texts as nonlinear patterns also entails

certain logical consequences for how the narrator and the writing process, as well as the reader and the reading process, are perceived. Because of the great complexity of nonlinear systems, no human can control them completely; neither can any human create a full-blown nonlinear pattern; nor can such a pattern be explained or understood to the smallest detail. As a result of its nonlinearity neither the author (via the narrator) nor the reader can have full control over the text. What produces nonlinearity is the iterative process of feedback, and iteration can also help to unfold some of the complexity.

Another logical consequence of perceiving the complex literary text as a nonlinear pattern, I claim, is that the author (via the narrator) cannot 'create' the nonlinearity of the text. No human can control the literary text completely, shape it to the smallest detail, predict its development, or decide all the meaning that will come out of it. What the author can do is to 'design' the text, by choosing the initial ingredients and how they relate. In this way the author can partly determine the effects of his text, but never completely. After finishing his design he must do what Uncle Toby did after telling Mrs Wadman a single time that he loved her: Toby 'left the matter to work after its own way'. The process of iteration transforms the initial relative simplicity into complexity and nonlinearity. To guide the reader in certain directions, as Honorine and Hugh are guided, the narrator can include some signposting in the text. In this way the 'creation' of literature (and art) is a process of design and randomness, leaving the narrator only partly in control of the text.

Like most contemporary literary theory, chaotics does not accept one single order, or one received meaning in the nonlinear pattern. Instead it envisions a process generating a multitude of changing meanings, where each significance is limited to what Ermarth calls its 'phase time'. Every new reading generates some change from the previous tentative meaning(s), and to some extent each reading is personal, in the sense that the pattern depends on the initial conditions at the place and time of the reading. The only serious risk of going 'wrong' would result from

attempting to decide the reading before it has begun.

The 'standard' technique for the reader is to iterate, (re-)read, the text. Some of the mysteries of the text will probably be unfolded, and additional significance emerges if the process is repeated. Naturally, some reflection and some consideration is also involved, but the iterative process of feedback is the most important component of reading.

Meaning emerges out of the text through self-organization. The reading process generates an input of elements that are either rejected or tentatively stored. Links are created between elements within the text, to other texts and to the reader's knowledge and previous experiences. Which elements are connected depends largely on chance (randomness) and on what Atlan calls 'the context of observation'. As the reading process continues and new elements are added, complexity (chaos) builds up and ordered patterns of images and ideas emerge. These patterns of meaning are part of an ongoing process of change. Thus meaning is always temporal and complex. The reader cannot 'create' this complex meaning, but the iterative process of reading prepares for ordered patterns to emerge through self-organization.

The literary works in this study have been chosen to illustrate the application of chaos theory to literature. In my chapter on *Rainforest* I begin with a simple and direct application and concentrate mainly on the content of the novel, and on the different characters' attitudes to chaos. My treatment of *Transparent Things* and *Travesty* is more complex and includes chaotic analyses of both content and structure. My reading of *Tristram Shandy*, a novel written long before the more explicit formulations of chaos theory, suggests that nonlinearity is a general and historical property of literary texts.

I chose *Rainforest* as the first novel in this study, mainly because of the conscious use of chaos theory found in it. Nick is a mathematician working with chaos theory, so here we have a direct and overt link with chaos theory. Mo, the protagonist, is obsessed by order and is a typical representative of Western culture in her constant favouring of ordered

systems. She is constantly trying to eliminate chaos by fragmentation and reduction. Mo's mother, Marjorie and her friend Liam largely accept the chaos around them and let themselves be carried along, ready to grasp whatever good that randomly comes out of it. Joe, like Mo, shuns every form of chaos. His method, in my reading, is to stop the chaotic process by constantly shifting the elements. He moves from place to place and from girl to girl in a feverish denial of pattern. Mo also attempts to suspend chaos but while Joe concentrates on individual elements, Mo pursues the opposite to its extreme. She favours pattern to the extent that her whole life is a pattern, a list of things to do. She reduces the elements in the pattern of her life more and more, the number of people and things around her are minimised until she sits alone in an almost empty room, in her empty space.

Hugh Person, the protagonist of *Transparent Things*, largely fails in his attempts to (re-)gain control over his life because he underestimates the randomness and unpredictability of the complex pattern of his life. The narrator, the ghost of Mr. R., also seems to have some trouble both in controlling the narrative and in influencing Hugh's life. In spite of all his efforts, the narrative does not come out exactly as he has prepared, and his attempts to control Hugh's life are limited in range because direct action is banned, so he has to accept the very restricted role of an editor. All he can do is to suggest to Hugh what he should do, often in the form of visual images, but after that Hugh himself decides, as does the reader of the novel.

The situation for the reader of *Transparent Things* is very similar to that of Hugh, and the reader must struggle to get some kind of control over the text. One of the obstacles arises from the two perspectives in the novel formed by the different abilities of the characters and of the spectral companions to perceive the layered world of the novel. The characters' 'quotidian' perspective (three spatial dimensions + time) is contrasted against the 'deeper' perspective of the narrator and the other ghosts in which time is a fourth spatial dimension and the world consists

of transparent time-layers below the thin film of the present one. Occasionally Hugh and other characters can get brief glimpses of the transparent temporal layers. On these occasions the character involved in this 'mnemoptical' effect is reminded of an emotionally charged memory and experiences a vision triggered by an object, a sound, a person or a colour. As I have demonstrated, the puzzles of the novel and the problem of the two perspectives can be negotiated by the reader as part of his iterative reading process, through operations of unfolding.

In *Travesty* the narrative, as well as the trip and the road it follows all contribute to the same fractal pattern, described by the narrator as 'our tableau of chaos'. It is a system of great complexity that is unpredictable and self-similar and contains the 'design and debris' typical of chaotic patterns. The trip carries a message to the narrator's wife, Honorine. That message will be a chaotic and complex one for her, centring as it does on the car crash—the most obvious illustration of debris. According to my chaotic reading, the narrator performs the standard tasks of narrators of literary texts: first, he designs the story and initiates the iterative process of feedback that generates nonlinearity; secondly, he guides the reader, or the receiver of the message, towards the interpretation preferred by himself. The narrator's messages to Honorine and to the reader call for the receiver's very active interpretative contribution.

When the narrative finishes, the car crash has not yet happened. So the reader cannot tell whether it will occur or not, or if the narrator is to be trusted or not. The car crash is just the narrator's prediction, and the question is whether it is the well-informed prediction of a demon with all knowledge (a possibility which the narrator both claims and undercuts), or if it is the very uncertain prediction of a human. The reader can only guess which it is. In this way the narrative ends in a gap, in silence, thereby marking the crucial moment of all literature when the narrator falls silent and hands over to the reader the responsibility for the narrative. The reader must start his iterative process, his re-reading of the text, in order to create space for chaos, and to make possible the self-organization

from chaos leading to literary signification and meaning. The moment of transfer of responsibility from narrator to reader I call 'the inauguration of silence'.

For centuries *Tristram Shandy* has been perceived by many readers as difficult and chaotic in the old sense of 'disordered'. My claim is that the novel is very complex and chaotic in the sense given by chaos theory: the text of the novel is nonlinear. I trace its nonlinearity in the structure of the narrative as well as in the depiction of Tristram's world. Surprisingly, this novel, written two centuries ago and long before chaos theory, also contains clear chaotic descriptions of the nonlinearity of texts and how this is generated.

The nonlinearity of the narrative is the result of iterative processes but Tristram's design of the story in itself displays a remarkable complexity, as the narrative structure consists of so many different elements. There are both verbal elements ('pure text', to be read or spoken) and extra-verbal elements ('non-letter signs', depending on visual effect). In the novel words are generally unreliable, and frequently they seem to mean something different from their quotidian denotation, especially when whole sets of words are forced into alternative signification, often with a sexual innuendo. The narrative oscillates between main story and digressions, and the storyline is clearly fractal with broken and folded and related elements often far from each other. No wonder that with such a complex design the narrative becomes nonlinear almost from the start.

Tristram's role as narrator mirrors closely what we have seen in the other novels in this study. He is the initiator and designer of a story he is unable to control completely and he makes attempts to guide his reader towards certain interpretations. As designer Tristram sets 'the Shandy-machine' in motion. This machine is a good metaphor for the creation of (narrative) complexity and combines a very simple construction with complex functions and a complex, nonlinear result. Tristram emphasizes the active role of the reader and stresses that the narrator must leave

something for the reader to imagine, creating an active partnership in a quest for meaning. Like the narrators in *Transparent Things* and *Travesty*, Tristram guides the reader in various ways.

The only hope for order and meaning to grow is through self-organization. Digressions are the life of reading, Tristram says, and my interpretation of this is that the complexity of the text is necessary for order and meaning to emerge. The reader is told to read the text over, to iterate, and because of the complexity of the text, meaning can emerge out of the chaos.

Complex literary texts can be successfully considered as nonlinear patterns. The opportunities inherent in this view permit a productive approach to the development and interpretation of texts. Neither the narrator nor the reader can 'create' meaning, but both are necessary contributors in preparing for meaning to emerge: the narrator designs the text and guides the reader, and the reader iterates, (re-)reads, the text. As a result of this iterative process of feedback, meanings, differing from reader to reader and from reading to reading, emerge from the nonlinearity of the text, through self-organization from chaos.



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