

## **The Chaotic World and the Entropic Crisis in Thomas Pynchon's The Crying of Lot 49**

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### **Abstract**

Having its roots in science, "chaos theory" provides a new strategy to examine the disordered world of postmodern novels to find the hidden order underlying the apparent chaos. This study tries to clarify the ambiguous relation between Oedipa Maas, the "Tristero system" and the "Maxwell's Demon" in Thomas Pynchon's *The Crying of Lot 49*. Oedipa Maas, the main character of the novel is regarded as an "everyman" type character who tries desperately to make sense of the signs and mysteries proliferating around her, but she can never fulfill her quest because she is trapped in a chaotic world where there are no stable values, friends or meanings. She feels separated from the world around her and longs to regain the stability she used to have before she started her task as the "executrix" of her former lover's vast estate. She does not manage to find "order" in the surrounding chaos, but applying the major tenets of chaos theory and examining concepts such as "the butterfly effect", "bifurcations", "strange attractors", "recursive symmetry" and "entropy", we can come to a better understanding of the order underlying the disordered world of the novel.

**Key words:** chaos theory - the butterfly effect - strange attractors – entropy - recursive symmetry – Maxwell's demon - Thomas Pynchon

Chaos theory is the study of apparently disordered systems to find an underlying order. The theory was popularized by James Gleick's *Chaos; Making New Science* (1987) which first introduced the principles and early developments of chaos theory. After finding a consolidated place in the scientific context, chaos theory found its way through the literary and cultural domains as a result of its convergence with postmodernism. "The purported epistemological power of chaos theory to explain complex nonlinear events has led some critics to consider chaos theory as being applicable to social systems" (Ward 4). In the context of literature, chaos theory shares with postmodernism the concepts of "uncertainty" and "ambiguity". The literary interpretation of

chaos theory, as Ward further argues, is founded on two basic premises: that because of the similarities between chaos theory and postmodernism, “the two may be considered chronologically and theoretically parallel paradigms, and that the social and fictional systems studied by the humanities are comparable with the systems studied by science” (ibid). Prigogine and Stengers might be the first to consider the convergence of chaos theory and humanities, because, as they argue, the original French title of their book, *La Nouvelle Alliance*, describes the “convergence of science and the humanities.” N. Katherine Hayles in *Chaos Bound: Orderly Disorder in Contemporary Literature and Science* (1990) considers literature and science “as two mingled voices within... postmodern culture” that have become closely associated (208). However since the appropriation of chaos theory in literary criticism is a new field of study there have been just few works to have dealt with it practically. Harriet Hawkins in *Strange Attractors: Literature, Culture and Chaos* (1995) shows how the terms and concepts derived from the science of chaos can be used in the analysis of the literary works. She emphasizes the universality of chaos theory and believes that this approach is applicable to literature of all periods. She discusses the butterfly effect, strange attracters, turbulence and instability in such early works as *Paradise Lost*, *Tempest* and a more recent book, *Jurassic Park*. However, Gordon E. Slethaug’s *Beautiful Chaos: Chaos Theory and Metachaotics in Recent American Fiction* (2000) is the first book to examine contemporary American fiction through the lens of chaos theory. Slethaug discusses the accomplishment of major American writers “through their disruption of conventional linear narrative forms and their use of strategic tropes of chaos and order, but also - and more significantly for an understanding of the interaction of science and fiction - through their self-conscious embrace of the current rhetoric of chaos theory”.

A glance at the postmodernist fiction reveals that most contemporary writers try to bridge the gap between science and literature. In the late twentieth century, non-linear dynamics and chaos theory provided the writers with a new source of inspiration that can be seen in the works of Tom Stoppard, Don DeLillo and Thomas Pynchon, who employ concepts of thermodynamics and information theory to “portray societies saturated with technologies that can by turns become liberating or threatening” (Heise 2).<sup>1</sup> The focus of this article is on ‘order’ and ‘entropy’ as tools to find the secret patterns of Thomas Pynchon’s *The Crying of Lot 49* which is considered the portrayal of the twentieth century, especially of the American society in the late sixties. In this novel we can see a mixture of different social and cultural elements such as the culture of suburbia, hippie rock singers, druggies, conspiracy groups, theater, actors, lawyers and paranoids. Oedipa Maas, the protagonist of this novel tries

to put these random elements together and wishes to create “constellations”, that is, to find an underlying order or pattern behind them, but the more she tries, the more she gets lost in the surrounding chaos.

### **‘Butterfly Effects’, ‘Bifurcations’ and ‘Strange Attractors’**

Oedipa, a young woman who lives in California with her husband, Mucho Maas, comes back home from a party in which she has celebrated her being appointed as the executrix of her ex-boyfriend’s will. After contemplating on the memories she had with Pierce, she travels to San Narciso (Pierce’s hometown) where she meets Metzger, her co-executor, and Miles, a member of a rock group called Paranooids and begins to sort through Pierce’s tangled financial affairs. She comes across an underground mail service called W.A.S.T.E with the symbol of a muted post horn. On a trip to Fangoso Lagoons, an area in which Pierce owned a substantial amount of land, they meet a lawyer who is suing the Inverarity estate on behalf of his client, who recovered and sold human bones to Inverarity but has not receive proper payment. A member of The Paranooids points out that this story is similar to the plot of a Jacobean Revenge play called *The Courier’s Tragedy*. Oedipa and Metzger see a production of the play the next day. This play adds to her bewilderment as she gets to know about an illegal mail system in renaissance Europe, called Tristero. After the play, she meets Driblette, the director of the play, and asks him some questions but does not get satisfying answers. As she leaves the theater, she remembers that she wanted to discuss the bones but she just talked about Tristero. This word becomes her major concern as she tries to investigate different versions of the play in order to find out more. She notices that the paperback version has no mention of the Tristero, which puzzles her. She decides to go to Berkeley to meet the publisher. On the way, she stops by an elderly care home that Pierce had owned, where she meets an old man with a ring depicting the muted post horn. He tells Oedipa that his grandfather cut this ring off the hands of an Indian he had killed. She also hires a stamp expert named Genghis Cohen to examine Pierce’s stamp collection. Genghis tells her that some of Pierce’s stamps have a muted post horn in their watermark. To find more about Tristero, Oedipa goes to Yoyodyne Company, one Pierce’s large belongings, and sees Stanley Koteks drawing the W.A.S.T.E symbol. He introduces John Nefastis and his machine that Oedipa, later in the story, seeks out to bring order to her state of mind, but fails. Oedipa returns to her home in Kinneret, and decides to see her doctor to seek solace. However, her frustration never diminishes as she finds her doctor gone crazy and her husband addicted

to LSD. On return to Echo Hotel, the Paranoïds group inform her that Metzger has run off with a teen girl.

Feeling lonely and frustrated, Oedipa meets Emory Bortz, an English professor whose name Oedipa finds in the preface to one of the versions of *The Courier's Tragedy* that she has found. He helps Oedipa piece together the history of the Tristero, which dates back to mid-16th-century Europe. He also tells Oedipa that Driblette, the person who knew the best about the Tristero version of the play, has committed suicide. Oedipa begins to give up as she realizes that she is very lonely and has no real friends. She visits Mike Fallopian again, who suggests that the whole Tristero mystery may be nothing more than a complex joke played on her by Pierce. Oedipa does not accept this possibility and leaves him angrily but later when she puts all the information she has gathered together, she realizes that every route leading to the Tristero also leads to the Inverarity Estate. Genghis Cohen gives her more information about Pierce's stamp collection, which is to be auctioned off by a local dealer as Lot 49. Oedipa thinks that the person who is going to bid for the collection may know the key to the Tristero. So, she attends the auction, wondering what to do to the strange bidder. In the last scene of the novel, Oedipa sits in the room waiting for the crying of Lot 49.

One of the most challenging implications of chaos theory that is implied in the notion of "the butterfly effect" is that systems change from near-to-stable dynamics to far-from-stable dynamics when they undergo bifurcations. The increasing number of bifurcations will cause the system to break apart and lose much of the order or pattern they have. Chaos theory demonstrates that "whether it occurs in computer, weather system, or a human being, a difference in output, so small as to be imperceptible at the time it occurs, can ultimately produce huge difference in output" (Hawkins 15). Nonlinear systems are, therefore, extremely sensitive to initial conditions, that means, "similar phenomena or systems will never be wholly identical and that the results of those small initial changes may be radically different" (Slethaug xxiii). In other words, chaos theory demonstrates that very small, seemingly insignificant individual effects can exponentially compound with other effects and give rise to disproportionate impacts. (Hawkins 16)

In the *Crying of Lot 49*, Oedipa is leading a seemingly normal, stable and relatively predictable life until she receives a letter giving her new responsibilities as Inverarity's executrix, at which point she becomes subjected to emotional and spiritual flux. Her routine and domestic life, symbolized by Tupperware parties, television, and twilight whisky pours and her marriage alters dramatically that the foundation of her life breaks apart. Her life, at every

moment of the story, is so uncertain that she (and even the reader) cannot predict what is going to happen next. Her life is surrounded by different forms of butterfly effects so that her life becomes similar to a basin of instability and bifurcations. In other words, the far-from stable system of her life undergoes bifurcations that seem totally uncontrollable. In chapter three, having just committed marital infidelity with Metzger, she finds herself entrapped in a world of convoluted mysteries that she cannot sort out, and reflects on her perception of the Rapunzel figure in Remedios Varo's painting that she had once seen in Mexico. This painting has a powerful effect on Oedipa since she has always seen herself imprisoned in a tower that is "everywhere", seeking hopelessly to fill the void of her life. She desperately tries to embroider a world that she finds uncongenial. She used to think that Pierce can save her from her tower, "but all that had then gone on between them had really never escaped the confinement of the tower" (11). Having realized that Pierce is not the solution to her problem, she hopes to find it somewhere else; "she pursues and then rejects one possibility after another that might fill the void and provide some sort of meaning ... that may offer some solutions to the mysteries presented to her" (Slethaug 48).

In the third chapter of the novel, Oedipa finds the muted horn symbol of the Tristero system, and this is the cause of a new mystery that is going to be a new "attractor" towards which the whole system of her mind gravitates. An attractor, to quote Hayles, "is simply any point within an orbit that seems to attract the system to it". (140) In other words, it is a point that guides or attracts the behavior of a system and causes the events to take place. When she comes upon *The Courier's Tragedy*, this is the word Tristero which "hung in the air as the act ended and all lights were for a moment cut; hung in the dark to puzzle Oedipa Maas, but not yet to exert the power over her it was to" (52). She finds the word significant, and has this presentiment that it would mean more to her later, although she does not know why yet. Once again, another bifurcation happens in the system. Now, she is "faced with a metaphor of god knows how many parts; more than two, anyway. With coincidences blossoming these days wherever she looked, she had nothing but a sound, a word, Tristero, to hold them together". (80) Oedipa is well aware of the chaos that is floating all around this word, since, as it was mentioned above, when the number of bifurcations increases, the system is in a state of chaos. She tries to regulate this chaos, but she gets to know just a few things about it: *The Courier's Tragedy*, Yoyodyne Company, the stamps collection, the Indian killers in nineteenth century, and the Inamorati Anonymous group all seem to have something to do with the Tristero system; that is, the "strange attractor" seems to be the Tristero

itself. Many people trace trajectories within its phase space and wander unpredictably within it, but are always drawn to remain within its orbit. This can be witnessed at the night when Oedipa roams the city apparently randomly, but keeps seeing the Tristero. She too, of course, is in its orbit.

When Oedipa reflects on the incidents happened to her, she realizes that whenever there is something related to the Tristero system, a trace of her bidder, Pierce Inverarity, can also be found. In other words, Pierce Inverarity, a mogul who might have owned the whole San Narciso, can be considered as the major “strange attractor” of this novel. He reminds us of Eris (the goddess of chaos) who instigated and ordered his own forms of chaos. But Oedipa cannot make sure about the source of chaos, this major strange attractor of the system, because he is now missing, and Oedipa has to stay intellectually and psychologically stable in the midst of a chaotic system surrounding her, as the Demon in “Nefasits’ Machine” is detached from the system itself causing the system not to go towards “Entropy”.

#### **“Maxwell’s Demon” and “Entropy” in *The Crying of Lot 49***

The idea of entropy and Maxwell’s Demon, which are significant elements of nonlinear science, play an important role in *The Crying of Lot 49*. The ambiguous relationship that Oedipa, Maxwell’s Demon and the Tryster system have with one another can be aptly clarified through the exploration of entropy both in thermodynamics and information theory.<sup>3</sup> Maxwell’s Demon is an abstract construct which belongs to the realm of thermodynamics. In 1850, Rudolf Clausius formulated the second law of thermodynamics, which maintains that “the entropy of the universe tends toward a maximum”.<sup>4</sup> Maxwell believes that his demon is able to challenge the claim that all systems move in one direction - away from order and organization and towards disorder (entropy) and eventual thermodynamic equilibrium. This Demon (device) is thought to contradict the second law of thermodynamics by suggesting that a closed system may evolve into a state of lower entropy (negentropy) over time.

The concept of “entropy” seems to be Pynchon’s favorite metaphor that can be applicable to many aspects of life. In his introduction to *Slow Learner*, he says that he has been trying to understand the concept of entropy ever since he wrote his short story with the title *Entropy*, in which he translates the concept of entropy into social terms (14).<sup>5</sup> Oedipa’s attempt to find the secret of Tryster and ultimately to save her from her tower of imprisonment is a search for order, but “the interface between thermodynamics and information theory prevents the message from being transmitted to the receiver (Dutta 3). In the story Nefastis tells Oedipa that “communication is the key...the Demon passes



his data on to the sensitive, and the sensitive must reply in kind... the sensitive must receive that staggering set of energies, and feedback something like the same quantity of information. To keep it cycling” (84). Oedipa Maas realizes that she is within “the confinement of [a] tower”(20), similar to the closed system in which, according to the laws of thermodynamics, entropy increases which may cause a heat-death energy that will lead to random disorder. She seeks “an end to her encapsulation in her tower” (44) of thermodynamic entropy in identifying the “Trystero system”. She is wandering in the midst of a whirlwind of messages providing her with different probabilities. If we consider information as a form of energy, as Shannon and Weaver did, then “the concept of entropy can be used to measure the information or organizational content of the message” (Ward 132). Hayles, also, believes that as the amount of information (the freedom of choice in selecting a message) increases in a narrative, the complexity and uncertainty of this information will also increase. The concepts of possibility and uncertainty are also shared by the thermodynamics. Orrin Klapp, in *Overload and Boredom*, asserts that “matter and energy degrade to more probable, less informative states. The larger the amounts of information processed or diffused, the more likely it is that information will degrade toward meaningless variety, like noise or information overload or sterile uniformity” (qtd in Dutta 7). This is also true about the Oedipa because she gets more disordered as she gains more information about Trystero. “This paradox of information”, Anindita Dutta argues, “in which knowledge and meaning clash, is held in limbo by redundancy; repetition is helpful so long as it serves as reinforcement, and establishes recognition. Otherwise signals would push a variety that borders randomness and noise” (7).

In *The Crying of Lot 49*, information refers to the data that the demon collects on the “untold billions of molecules in the “Nefastis’ box”. Nefastis explains to Oedipa that thermodynamic and information were entirely unconnected, except at one point; Maxwell’s Demon. As the demon sat and sorted his molecules into hot and cold, the system was said to lose entropy, but, somehow the loss was offset by the information the demon gained about the molecules were where”. (105) Implied in this explanation is that “an increase in one quantity (information) “offsets” decrease in another quantity (heat entropy)” (Palmeri 983). The demon violates the thermodynamic entropy as it produces a “staggering set of energies” through the destruction of a “massive complex of information”, since entropy is an irreversible transformation, the human intervention of “sensitive” supplies the information that the demon needs to convert heat energy into usable energy.

Similar to Denis Gabor's comment on Maxwell's Demon that "we cannot get anything for nothing, not even an observation" (see Angrist 199), Schaub asserts that "the Demon requires some input from outside to keep it all cycling" (Pearce 57) and concludes that this is the role of Oedipa as a "sensitive". Oedipa tries for some minutes, "waiting for the Demon to communicate" (106), amongst the noise from the "high-pitched comic voices issued from the TV set", but she only receives a "misfired nerve cell" (107). This unheard message is like a "hieroglyphic sense of concealed meaning of an intent to communicate" (13). Anindita Dutta believes that

The light the Demon uses when he acts as "gateskeeper" to identify the molecules is too bright for Oedipa's system. And truth, like the entropy of information theory, irreversibly destroys the meaning of its own message, just as the Demon destroys the knowledge that the sensitive passes on to it in order to create power. In this paradoxical state, Oedipa's quest for the truth about Tristero, and her subsequent attempt to escape from her tower of thermodynamic entropy are useless, because they bring her back to the same quantity of heat energy(12).

Peter Abernethy argues in "Entropy in Pynchon's *The Crying of Lot 49*" that Pynchon's theme in this novel is that "entropy in the closed system of American society is increasing rapidly and that we are beginning to experience a major failure in communications, an identity crisis that could lead to apocalypse (18). Oedipa cannot find the information and ends up in a highly probable state of uncertainty over Tristero. She has a job of sorting and her "sensitivity" makes her the Demon of Pierce's estate. She is the demon of her society exactly in the same way that Maxwell's demon is to Nefastis' machine. Her effort to disentangle Pierce's legacy makes her study her society through the signs and symbols around her to differentiate between reality and the illusion of the Tristero system, and to form her information into some order to achieve the truth. Schaub proposes that Pierce bequeathed to Oedipa not only his estate, San Narciso, but also his role. Pierce's last name, Inverarity, is the birthplace of James clerk Maxwell, the inventor of the demon. It suggests that Pierce was the demon of his system, and now, this is Oedipa who has to keep the system cycling.

But, for her task of sorting, Oedipa requires a source of energy from outside to reverse the entropic movement inside towards disorganization, sameness and death. From the beginning of her trip, she feels "as if there were revelations in progress all around her" (28). Arriving at Pierce's estate, as she looks at the printed circuit pattern of the streets in San Narciso, she experiences "an odd religious instant" that the town that looks like a circuit has "an intent to



communicate... so in her first minute in San Narciso a revelation trembled, just past the threshold of meaning” (13). This revelation, Kermode argues, “would be of the kind that explains the whole history, the present condition of America, Inverarity, Wharfinger’s play and so on; it would explain how waste has meaning just as, couched as acronym, WASTE forms a sentence (“we await sad Tristero’s empire)” (13) . She is waiting for a miracle that Jesus Arrable defines to her as “another world’s intrusion into this one” (88). But, she falls prey to so much random information and confronts so many binary choices that she cannot find that religious instant or that miracle to obtain the truth. “Even if she did find out the central truth or the excluded middle that has leaked out of the plot of this novel... Pynchon would have violated the theory of information had he revealed the encoded message” (Dutta, 12). This is , perhaps, what Pynchon has had in mind, because the highly entropic information level at the end of the novel implies high probability and uncertainty which causes the reader to end up with two different alternatives; either the Tryster doesn’t exist, and Oedipa is “in the orbiting ecstasy of a true paranoia”, or it exists, and so it would be the only way she can “continue and manage to be at all relevant to it, was an alien, unfurrowed, assumed full circle into some paranoia”(151). Thus the pattern of Oedipa at the end of the novel is comparable to a type of “everyman” who, just like the reader, tries to put together the fragments of a chaotic, multi-faceted society, but fails and cannot achieve the secret, elusive and transcendental meaning; the END.

### **“Recursive Symmetry” and “Orderly Disorder Structure” of *The Crying of Lot 49***

Chaos scientists acknowledge that there is an underlying complex pattern in every disordered (chaotic) system which is said to be repeating itself. This replication or iteration in the chaotic systems is called recursive symmetry that is defined by Brian Ward as “a term used by chaologists to describe the repetitive behavior of an open system” (139). Harriet Hawkins believes that artistic tradition is nonlinear and chaotic, since “it acts and reacts on itself in recursive, self referential ways. Thus the behavior of one function is guided by the behavior of another” (102). Slethaug in *Beautiful Chaos* asserts that the distinction between iteration and recursion in literature and art is not as obvious as in mathematics and science, and differentiates between two forms of narratives: recursive and iterative. To him, recursive narratives “depend to a great extent for the meaning of the text upon the readers of an original pattern”, whereas the iterative narratives “rely more upon the readers’ conscious awareness of the differences caused by successive repetitions” (98).

Iterations and recursions play a central role in the structure of *The Crying of Lot 49*. Through these recursions and iterations, Pynchon signals the various analogous problems of trying to discover the central significance. Oedipa's loss of the sources of information and encouragement, her analysis of *The Courier's Tragedy* and Remedius Varo's paintings, her travel to different parts of California and her comparison of the city to a circuit card, and finally the ending of the story are instances of recursion in this novel.

Various characters of the story seem to leave Oedipa when they are most needed to bring order or an end to the flux of her mind. The novel begins with a letter informing her that her former lover, Pierce Inverarity has just deceased, and she is named the executrix of his estate. While trying to disentangle the estate, she meets Metzger, her co-executor and has a love affair with him, but later in the story, Oedipa finds that he has escaped with a young girl. As she tries to find out the secret of Tristero, Driblette, the only person who knew how the word Tristero entered the courier's Tragedy commits suicide. She also loses her psychologist who has gone crazy and her husband who is found to be addicted to LSD drugs, forcing him to withdraw from communication. One by one, Oedipa loses each of the men whom she had used to protect herself – lover, husband, psychologist, and her co-executor who was supposed to help her in her search are all “stripping” from her, leaving her to feel “like a fluttering curtain in a very high window, moving up to then out over the abyss” (125-26). At different moments of the story, she becomes emotionally, spiritually, and intellectually separated, and her quest for the meaning in the labyrinthine paths of story seems to end in dead-ends.

Her failure to find stability, significance, and meaning in her quest to understand herself as well as the secret of Tristero, and Pierce's intention behind his will, as Slethaug asserts, “is mirrored in her attempt to locate textual stability and authorized meaning in the play called *The Courier's Tragedy*” (113). The failure in interpreting the play is again “mirrored in her attempt to find coherent meaning and significance in the pictures by Remedios Varo or the stamps of Inverarity's collection (Ibid). Her futile attempts to find the significance of her relationship, the play, the stamps, and the pictures suggest that it is the pursuit of meaning and significance and the failure to find it that is the primary link among these various segments of her life and the text.

The other example of recursive symmetry is the ending of the novel. *The Crying of Lot 49* finishes as Oedipa is awaiting “the crying of lot 49” to discover the identity of the strange bidder at the stamp auction, that is, as Georgianna M. Colville suggests, it returns the reader to the moment before opening the book (14).<sup>6</sup> Debra A. Castillo comments on Pynchon's ending that

The book has announced itself, defined itself, and, in a peculiarly postmodern variation of this lightly symmetrical construction, put quotation marks around its own title – the key to unlock this structure – thus displacing formal symmetry into an active, metafictional shadow writing (25).

The Crying of Lot 49 does not have an actual ending in the conventional sense of the word, or it defies closure both for the reader and the character but as Paul Coates argues " this ending is necessary, for "the fact that no revelation concludes the book...fits [its] thematic design (qtd in Salomon 17). This is a kind of self-parody, because the whole narrative is moving forward to come to conclusion, but by the end of the story the reader is kept waiting and the meaning or The End is permanently postponed.

Recursive symmetry is the structuring technique of the novel; it is a “will to form which imposes order on apparent chaos... the miracle machine that creates plot out of disorganized fragments” (ibid). Through the examples of recursive symmetries discussed above, Pynchon has created a collection of plots within a novel that is much like a labyrinth full of disordered paths that apparently end in “nowhere”, but as William Gleason discusses in his article “The Postmodern Labyrinth of *The Crying of Lot 49*”, the labyrinth may appear chaotic and terrifying to the explorer, but at the same time “ordered and even delightful to the designer” (2).

#### **Notes:**

1. Ursula Heise in “Between Technophobia and Utopia; Science and Postmodern Literature” argues that appropriation of the science in the context of literature used to deal with the creation of monstrously human bodies and minds as in Shelly’s *Frankenstein* or Hawthorne’s *Rappacini’s Daughter*, or oppressive environments that degrade humans to mere parts of machinery, as in Fritz Lang’s film *Metropolis*, or the totalitarian societies as in Huxley’s *Brave New World*.
2. For the analysis of Don DeLillo’s major works in the light of science and chaos theory see Brian Ward’s *The Literary Appropriation of Chaos Theory*, Gordon E. Slethaug’s *Beautiful Chaos*.
3. The concept of thermodynamic and information “entropy” in Pynchon’s major works has been discussed by many scholars. In addition to the books that I have cited in this section, some articles have fully discussed this subject,

among which I can mention Thomas R. Lyon's "Thomas Pynchon's Classic presentation of the classic law of thermodynamics", published in the bulletin of the Rocky Mountain Modern Language Association, Vol, 27. No. 4. (Dec. 1973), Peter A. Abernethy, "Entropy in Pynchon's *The Crying of Lot 49*, 14. 2. CRITIQUE 18,(1972) , and Anindita Dutta's article to which I am much indebted, "The Paradox of Truth, the Truth of Entropy", available on <http://www.pynchon.pomona.edu/entropy/paradox.html>.

4. See Lyons and Franklin

5. See also the discussion of Entropy on the following link;  
<http://www.pynchon.pomona.edu/entropy.html>.

6. David Seed also has a similar sentence that "instead of resolving the narrative Pynchon places Oedipa in an audience and by repeating the novel's title throws the reader back into text". See Seed (1988;123-24)

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