

# Deconstruction and Science:

## How Post-Structuralist Literary Theory Applies to Scientific Understanding

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## INTRODUCTION

At various times, an idea which arises within a single academic discipline will have an effect on a surprisingly broad audience. The contributions of Freud to psychology, Darwin to biology, and Marx to political philosophy have affected not just their respective fields but the entire academic world and humanity as a whole. An event resembling this took place in the realm of literary criticism during the 1960s and 1970s. Although the ideas presented by literary deconstruction were not entirely new, they arose at a time and in a way that facilitated their acceptance and application. Also called post-structuralism, postmodern criticism, or simply postmodernism, the ideas behind this new mode of criticism carried deep implications for the nature of meaning, the self, and the interpretation of reality. These ideas quickly spread outside the closed worlds of literature and linguistics, and were applied to everything from historical studies to science and technology.

Many ideas central to the modern view of the world are now undermined by the arguments and methods of deconstruction, including the validity of empiricism, the possibility of meaningful knowledge, and even the idea that reality is in some way accessible to reason. Since all these tenets form the core of the scientific world-view, it is not altogether surprising that science has been the recipient of criticism based on the ideas of the deconstruction. This is rightly seen by many scientists as a grave threat. Those who apply deconstruction's ideas to the scientific world-view, however, claim they are helping to overthrow a power hierarchy (one of many) that has unjustly monopolized

the epistemology of a culture. Their claim relates directly to the nature of the literary movement from which their ideas originated.

## **A BRIEF HISTORY OF MODERN LITERARY CRITICISM**

### **NEW CRITICISM**

The twentieth-century saw the rise of many innovations in literary criticism. One of the first was known as New Criticism. New Criticism was an attempt to bring the rational and systematic practice normally associated with science into the literary field. It asserted that objective knowledge of a text could be obtained by a systematic and careful analysis of the work itself. This is where the term “close reading” originates, and it is a technique commonly practiced by current English teachers. New Criticism carried two important ideas: first, it ignored many aspects of literature that traditional criticism considered important, such as the biography of the author and the historical context of the work; second, it asserted that there existed within the text itself one objective, knowable meaning, which was accessible to the reader by means of careful analysis. Both of these ideas emphasize objectivity. The New Critics believed that it was vital to assess every aspect of a text: plot, irony, word choice, themes, tone, and the like. It was only from this analysis that one could ascertain the meaning of a text. Nevertheless, the New Critics opposed reductionism—they believed, like the Romantics, that a creative work constitutes an organic whole which is greater than the sum of its parts.

There is no question that their practice drew significantly from the scientific method (Rice and Waugh 45). Although New Criticism maintained the aesthetics of the

Romantics, it was rational and systematic in its workings. New Criticism, however, was not the only attempt to apply the ideas of modern rationality to literary criticism.

## STRUCTURALISM

An even more ambitious attempt to bring scientific thought into literary criticism grew from the writings of Ferdinand de Saussure. He developed what might be called a science of language, known as semiotics. His system evaluated language using reductionist philosophy—the same philosophy New Criticism rejected. Saussure divided language into its smallest component parts, and attempted to describe the relationships between words (signifiers) and that which they represent (the signified). According to Saussure, however, this relationship alone is not sufficient to describe the process by which language acquires meaning. If someone attempts to define a word, they must necessarily relate it to other words, which in turn relate to still more words. It is in the relationship between words that they acquire meaning. As Saussure himself put it, “Language is a system of interdependent terms in which the value of each term results solely from the simultaneous presence of the others” (Saussure 36). Further, it is in the *differences between* words and their definitions that the language takes shape:

In language there are only differences. Even more important: a difference generally implies positive terms between which the difference is set up; but in language there are only differences *without positive terms* [...]  
[L]anguage has neither ideas nor sounds that existed before the linguistic system, but only conceptual and phonic differences that have issued from the system. (Saussure 40)

Saussure's mention of the lack of "positive terms" speaks to his belief that language is merely a *social construction* of "reality," rather than some absolute or meaningful representation of it. In other words, there is no direct connection between language and reality. Saussure, in fact, claims that, "Social fact alone can create a linguistic system" (35). This view of language, while simplified for this presentation, is obviously one of tautology. Language refers only to language. This leads to the idea that language (or any of its manifestations: speech, poetry, philosophy, etc.) carries meaning solely through its internal structure of interconnectedness. Structuralism as it is applied "is not particularly interested in meaning *per se*, but rather in attempting to describe and understand the conventions and modes of signification which make it possible to 'mean'" (Rice and Waugh 46).

Structuralism was adopted by literary critics, but its ideas apply to many cultural phenomena outside the realm of literature (Rice and Waugh 46). Levi-Strauss's anthropology was distinctly Structuralist, and many other modern thinkers used the ideas, if not the terminology, of semiotics. This extremely rational and explanatory system is not without its flaws, however. As will soon become apparent, the assumptions and practices of Structuralism quite readily gave rise to what is now known as deconstruction.

## POST-STRUCTURALISM OR DECONSTRUCTION

Jacques Derrida, one of the principle developers of the deconstructive discipline, modified the ideas of both the New Critics and the Structuralists in several important ways. This is not to say that he did not borrow heavily from them both. From New Criticism, Derrida took the idea of close reading and careful evaluation of a text. In their

practice, Deconstruction and New Criticism differ very little, as they both emphasize careful reading and identifying all the important aspects of a text. Derrida also adopted the ideas of semiotics that formed the foundation for Structuralism. Where Deconstruction differs greatly from both New Criticism and Structuralism is in its manner of interpretation.

A simple definition of Deconstruction would read as follows: “texts can be used to support seemingly irreconcilable positions” (Murphin 283). This idea seems obvious to almost everyone who has taken a literature class or discussed a book with a friend. Rarely will everyone agree about the “meaning” of a particular novel or poem. This simple definition, however—although it provides a beginning—does not cover the breadth and depth of this school of literary criticism. To understand the true implications of the claims of Deconstruction, one must look at the modifications it made to both New Criticism and Structuralism.

While Derrida agreed—for the most part—with Saussure’s description of the workings of language, he added that society tends to arrange language into pairs of opposites. These either/or constructions are mutually exclusive. “Something is black but not white, masculine and therefore not feminine, a cause rather than an effect [...]” (Murphin 284). Further, Derrida asserted that one of these terms was always privileged over the other. It might be an obvious prejudice, (true is superior in the pair true/false) or it might be subtle (cause is privileged over effect). Nevertheless, any term from one of these pairs carries with it both the idea of the other (there would be no concept of freedom without the concept of oppression), and the implication of its place in the hierarchical system of values. Perhaps more radically, Derrida claims that the hierarchies

inherent in these oppositions carry their meaning even when they are used against their own system. "Since these concepts are not elements or atoms," Derrida claims, "and since they are taken from a syntax and a system, every particular borrowing brings along with it the whole of metaphysics" (198). In other words, any attempt to discourse within a particular language necessarily is shaped and constrained by the nature of that language. It was not Derrida's goal to reverse the hierarchies within these oppositions, not even those with obvious negative consequences (consider masculine/feminine). This type of thinking would simply consign language to a different set of fixed ideas and implications. Rather, Derrida was attempting to, in Murphin's words, "throw the order and values implied by the opposition into question" (285). One can see how such an endeavor calls into question the very idea of Meaning or Truth, and this leads into the next, related tenet of Deconstruction.

It was stated previously that Deconstruction follows the same method of "close reading" that identified the New Critics. New Critics often found, and even looked for, contradictory and ambiguous content within various texts. Some New Critics even claimed that the most basic aspect of literature was paradox (See Brooks' essay, "The Language of Paradox."). This recognition of ambiguity or contradictory meanings, however, was seen as an essential aspect of the uniqueness and final "meaning" of a text. As Murphin states it, the New Critics believe "a complete understanding of a literary work is possible, an understanding in which even the ambiguities will fulfill a definite, meaningful function" (288). One useful metaphor for expressing this comes from a Structuralist vocabulary: the New Critics would claim that each text has a "center." Although the terminology does not come from New Criticism, it should be readily

apparent what a “center” means in this context. The center of a text is the focus which all the other pieces—including the ambiguities—illuminate. As Derrida put it, “The function of [the] center was not only to orient, balance, and organize the structure—one cannot in fact conceive of an unorganized structure—but above all to limit what we might call the *play* of the structure” (196). Thus the center (or meaning) of a text fixes it rigidly to some final explanation.

It is precisely the idea of a final explanation where the deconstructionists differ from the New Critics. Derrida describes his view of center in this way: the history of assigning meaning “must be thought of as a series of substitutions of center for center, as a linked chain of determinations of the center. Successively [...] the center receives different forms or names” (196). He claims that in the past, as understanding of a topic changed, there was a substitution of different bases or “centers” around which the understanding was organized. However, after a consideration of the nature of structure, he decided

It was necessary to begin thinking that there was no center [...] that the center had no natural site, that it was not a fixed locus, but a function, a sort of non-locus in which an infinite number of sign-substitutions came into play. This was the moment when [...] in the absence of a center or origin, everything became discourse [...] that is to say, a system in which the central signified, the original or transcendental signified, is never absolutely present outside a system of differences. (197)

This conclusion, complicated as it may seem, presents a fairly simple but profound leap. There is no way to declare one idea is the center—or meaning—of any text without in

some sense claiming that center is transcendent to the system of difference from which it originates. Derrida's assertion is that there *must not be* any center outside the system of difference. Since language refers only to itself (this is based upon Structuralism, of course), the idea of a center outside the system of difference is absurd. The practices of the deconstructionists flow directly from this assertion.

Whereas the New Critic sees conflicting ideas within a text as ambiguities resolving into some coherent whole, the Deconstructionist identifies those contradictions as what has been termed "undecidability." The idea of undecidability is easily misunderstood. It does not mean that because a text supports multiple readings the reader is unable to choose the best one. Rather, undecidability claims that reading is not supposed to be a decision-making process at all; instead, a reader should acknowledge the innumerable possible meanings without attempting to resolve or connect them to some ultimate "final reading" (Murphin 288-9). Derrida—and indeed, all Deconstructionists—would claim that any reader who attempts to find the unique "meaning" of a text is simply imprisoned by the linguistic structure that would "declare one [meaning] to be right and not wrong" (Murphin 286).

Thus the goal of Deconstruction is to expose within a text conflicting or contradictory meanings and depict them for the reader. It must not elucidate any one reading and elevate it, but instead display the undecidability of the text. As J. Hillis Miller put it, "Deconstruction is not a dismantling of the structure of a text, but a demonstration that it has already dismantled itself" (qtd. in Murphin 283).

Obviously, the ideas of Deconstruction have a tremendous impact on reading and understanding literature, but they also—by making universal claims about language—

affect every other means of knowing as well. In fact, there are many scholars who use the principles and techniques of deconstruction in many other fields. These scholars often refer to themselves as Postmodernists, and although the term is somewhat ill-defined, in this paper it will refer to those who apply deconstruction to ideas outside the realm of literature.

## **THE POSTMODERNIST PERSPECTIVE**

### **MODERNISM (OR PRE-POSTMODERNISM)**

It will be helpful at this point to step back a moment and attempt to define an important concept that relates to science and its world-view. Before the idea of Postmodernism can be addressed, some notion of Modernism must be posited. Many ground the foundation of Modernism with Copernicus, where a human-centered view of the universe was displaced, and humanity became simply a peripheral piece in a vast, intricate cosmos. Some claim that it is rooted in the Enlightenment's emphasis on reason against all other forms of knowledge. Both views are probably correct since Modernism gives emphasis to both disinterestedness in observation and the importance of objectivity and reason. To go further, Modernism can be explained as the world-view that is displayed by current, materialistic, experimental science. In its emphasis on reason as the primary (or even exclusive) means of understanding the world, it clashes often and deeply with religious and other non-rational views of reality.

One helpful means of explaining Modernism is employed by William Grassie in "Postmodernism: What One Needs to Know." In his structural examination of some modern scholars such as Marx, Freud, Levi-Strauss, and Darwin, he identifies a recurring

idea, which he identifies as the base-superstructure explanation of reality. This idea is a central feature of Modernism. Basically, each of these thinkers asserts that the reality of a given situation or effect is the result of some underlying foundational base. For example, Marx claimed to describe the economic principles which ultimately were responsible for the world as it appears. Religion, whatever it might seem to the common observer, was merely a tool in the hands of the bourgeoisie to oppress and sedate the proletariat, and grew naturally for the economic reality (and system of power relations) that was more fundamental than itself. Freud, similarly, claimed that the workings of the mind were, despite their simple surface, the result of the complex processes of the unconscious. Likewise, he viewed religion as a process of the aberrations and delusions that flow from unconscious and repressed desire. These rational descriptions of reality attempt to overrun non-rational understandings by showing them to be the consequence of some basic cause outside themselves. It is, essentially, a Structuralist argument. In this same vein, Grassie asserts that Modernism claimed the following:

A person's or a group's self-understanding was not viewed as reliable knowledge, because it was distorted by psychological delusion, perspectival illusion, and ideological prejudice. Just as science was able to prove much in nature that was counterintuitive, like the earth moving around the sun, the new social sciences [...] would unveil the true nature of individual beliefs and social structures as causationally derived from some foundational base. (85)

This belief in the presence of some rational, ordering principle underlying the visible world is the essence of modernist thought.

## POSTMODERN THINKING

It becomes readily apparent that the ideas of Deconstruction—especially as they relate to centers and the base of meaning-structures—pose a grave threat to the Modernist conception of the world. According to David Harvey,

The Enlightenment project ... took it as axiomatic that there was only one possible answer to any question. From this it followed that the world could be controlled and rationally ordered if we could only picture and represent it rightly. But this presumed that there existed a single correct mode of representation which, if we could uncover it (and this was what scientific and mathematical endeavours were all about), would provide the means to Enlightenment ends. (qtd. in Veith 42)

If the mode of representation is inadequate—if there is no means of representing any objective, transcendent reality—Modernism has no validity. This is, in fact, the claim of the Postmodernists.

The goal of Postmodernism is similar to the goal of Deconstruction. Just as Deconstruction attempts to show the invalidity of any single meaning of a text, Postmodernism attempts to show the invalidity of any basic, foundational category of reality by revealing it as the product of some other factor. In other words, the goal of Postmodernism is to show that the “center” is not the center at all but merely another piece of the self-referential system constructed by our language. (Grassie 86). Veith puts this idea in a way that recalls Derrida’s assertions about the progression of centers: “In the past, when one framework for knowledge was thought to be inadequate, it was replaced by another framework. The goal of Postmodernism is to do without frameworks

for knowledge altogether” (49). The deconstruction of knowledge bases is used to attack every aspect of the Modernist world-view, including science.

## **SCIENCE AND THE POSTMODERN**

### **DECONSTRUCTING “REALITY”**

The fundamental claim Postmodernists make regarding science is simply that language does not provide adequate access to “reality” to make truth claims. In other words, scientific speech is not any more privileged than literary or religious speech. Each sub-system of language can be view as an internally consistent structure, which only refers to itself. Grassie explains:

Within the rules of their respective language games, an Orthodox Jew can be every bit as rational as a particle physicist; indeed, they can be one and the same person. There is, however, no master language of Truth, as the scientific positivists and religious fundamentalists had hoped. (88)

This description of language as a “game” results from the same impulse that labels all descriptions of the world “narratives.” It is a natural consequence of the claim that language is only a self-referential system. If this is indeed the case, as the Postmodernists insist, then scientific speech and writing, just like any literary text, are open to deconstruction and the removal of a “center.”

The main problem Postmodernists have with science is what they call the idea of a modest witness. According to Donna Haraway, a modest witness is one who claims to be “objective; he guarantees the clarity and purity of objects. His subjectivity is his objectivity. His narratives have magical power” (qtd. in Weaver 5). This ideal of a

“modest witness” is accomplished by means of a dispassionate method of observation which denies his unique, individual perspective. The objective approach a scientist adopts gives credence to the belief that “what he is saying, interpreting, and describing is unmediated by his own subjectivity and humanness [...]” (Weaver 5). Postmodernists claim this whole system of pretended objectivity is illusory and useless. No one perspective is privileged, no observation is distinct from the observer, and to pretend that one’s views are objective truth is absurd since there is no access to reality except through the constructed system of language. Partial views are acceptable, but, as Donna Haraway put it, “Only the god trick is forbidden” (186).

There are differing degrees to which various Postmodernists are willing to take this critique, of course. Some would say that the very idea of an external reality is merely a construction of language. There are very few who take this position, however, and those who do, one would think, probably do not spend much time trying to explain it to “other people.” The more common belief is one which affirms the existence of an external world, while denying the idea that human language could ever exactly or objectively describe that reality. Weaver puts it this way:

The fact of the matter is that reality is not being contested nor is the existence of an external world free from any human biases. What is being contested is the notion that anyone, whether it is the “good” scientist or the reality-denying critic, can know reality or its external truths without some form of mediation, whether it is language or a laboratory instrument. (6)

This mediation, according to the Postmodernists is damning. While a scientist would likely claim—as Boyd does in his essay “Metaphor and Theory Change: What Is

‘Metaphor’ a Metaphor For?’—that although language is an imperfect tool to describe reality, it can be modified as scientific understanding increases in order to “accommodate [the] appropriate causal structures” (484). This “appropriate causal structure,” which Boyd refers to elsewhere as the “joints” of reality, is not simply a human description of reality but the actual laws and rules that govern the cosmos. The idea that such a “causal structure” or system of “joints” even exists seems dubious to the Postmodernists (this most fundamental of science’s assumptions often goes unexamined because it is so intrinsic to the English language). Even more questionable, however, is the idea that language could somehow be accommodated to this structure. Language necessarily orders and organizes human observations of the world—Derrida claimed that any use of language carried with it the whole of metaphysics—so how could it be accommodated to the “real world” as separate from human perceptions of it? Thomas Kuhn, who was among the first to apply these ideas to science, claims that rather than constantly aligning itself more closely with the joints of reality, scientific language is only a “product of mutual accommodation between experience and language” (542). Remember, however, that in the Postmodernist view, experience is necessarily shaped and influenced by language. To think of the scientific endeavor as anything other than this, according to Weaver, is to “[forget] that we are using models and interpretations” (9). Science, in the Postmodern view of the world, is not dead. It has simply been relegated to a lesser role than it was assigned in Modernism. Postmodern thinking views science as a useful apparatus, but not a means of gaining any final or ultimate Truth. Kuhn acknowledges that science improves human understanding “for solving technical puzzles in selected

areas,” but denies that it can ever access “what really exists in nature, [...] the world’s real joints” (541).

Again, the argument for this is a simple linguistic one. Language has nothing outside of human experience to fix itself on. Therefore, it is unreliable when it comes to descriptions of any transcendent reality. Donna Haraway puts it eloquently: “The world neither speaks itself nor disappears in favor of a master decoder. The codes of the world are not still, waiting only to be read” (188).

## **CONCLUSION**

If accepted, these views of language and science have tremendous implications. They demolish religion, science, and any other means of “knowing” imaginable. Each person is consigned to play their own language “game,” never truly understanding the extent to which all thought is shaped and determined by the prison of syntax and grammar. Nevertheless, despite its unattractiveness, Deconstruction and its cousin Postmodernism do have a certain logic and appeal. They are, without a doubt, carefully arranged and skillful critiques of the current means of knowing. Either way—whether Postmodernism is nonsense or “truth”—the dominance of Modernist thinking seems severely challenged, and there is little doubt that the reverence this culture has had for science will necessarily change as a result of this opposition.

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