

Response

**Trading Tunes with Stanley Fish:  
Grand Unification Theories and the  
Practice of Literature and Science**

by  
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**Abstract:** Stanley Fish has charged that literary critics who begin from epistemological relativism cannot escape the constraints of their discipline by appealing to such assumptions and then go on to interdisciplinary inquiries and claim for them the authority and importance that disciplinary claims usually get. Literature and science, especially as it draws on physicists working toward grand unification theories, offers an example of how crossing disciplinary boundaries can pursue transcendent questions without losing the authority that disciplines offer or suppressing the important perspectives that epistemological relativism has to offer. David Bohm's *Wholeness and the Implicate Order* (1980) suggests how a unified theory can include within itself the flexibility to take into account the discontinuities that Fish sees as the major obstacles to interdisciplinarity.

**S**TANLEY FISH'S "BEING INTERDISCIPLINARY Is So Very Hard to Do" (1989) raises the central questions regarding the claims being made for interdisciplinarity by recent literary theorists, but I think his choice of the tune in his title mistakes the focus of the crucial issue and might have forced his startling conclusion that "Being interdisciplinary is more than hard to do; it is impossible to do" (Fish, p. 19). I'd suggest that Clyde McPhatter's "The Lover's Question" (1958) is a better rock lyric to use as a point of definition for addressing the issues that Fish raises. McPhatter's plaintive "Does she love me" and "How am I to know it's really real" are also key questions for establishing disciplinary validity and authority, and they anticipate Fish's ar-

gument that the epistemology that enables many recent claims for interdisciplinarity also undercuts the possibility of interdisciplinarity. Fish objects to the authority assumed for interdisciplinary claims when the occasion for such claims begins with postmodern concerns about being sure of the “really real.” Specialization, professionalism, and disciplinarity are all functions of experts searching for greater and greater certainty about the results of their scholarly inquiries.

Fish is quite right about the tension between working within a discipline and reflecting on the assumptions that enable the discipline, but he jumps perhaps too quickly to the conclusion that no resolution of the tension in scholarly practice is possible. Scholarly practice requires both the urge for certainty and expertise and the attendant urge to locate research results within larger intellectual frameworks. Becoming more expert in a discipline requires that a scholar narrow attention within a specialized field. Making the larger connection requires the scholar to engage broader, less familiar areas of concern. The attention to a field increases expertise, but sacrifices the awareness of this world that would be explained by a broader perspective. The time spent engaged with larger frameworks sacrifices the authority of expertise in a narrow specialization and risks drawing unconvincing conclusions about a broad, loosely-defined area.

Fish is especially hard on the theorists who begin from epistemologies which deny truth value to any but the most local and context-bound statements and still look to interdisciplinarity as a free space in which to develop transcendent perspectives and to formulate global statements. He argues that a practitioner cannot both think about the discipline and work in it at the same time.<sup>1</sup> Nor, says Fish, can a theorist who begins from a relative epistemology create any space that enables and sanctions global statements. Both concerns are central to what some twentieth-century physicists have been doing in response to the implications of the theory of relativity, especially in its Copenhagen interpretation. Modern physicists all begin from relativity, but they manage to work with two mechanics, Newtonian and quantum, to address the different aspects of their subject, and still find it possible to support and include the work on grand unified theories, which by definition transcend everything. The work of physicists in searching for a grand unified theory, or a theory of everything, suggests how claims for transcendent explanations and discipline-bound practice can not only coexist, but also reinforce each other. Both the dynamics of the theorizing about unified theories and the experience of physicists working toward such theories offer a model for how work in a discipline moves beyond its boundaries and then accounts for itself.

So, physicists have experience in negotiating between the competing claims of work in a discipline and claims which presume to transcend the discipline's work, even as those transcendent claims begin in the discipline. These new claims are especially challenging since many of them argue that they are unprovable by methods currently existing within physics. Concerns about how to treat claims which transcend existing boundaries are important and a crucial issue in approaching interdisciplinarity. The field of literature and science, as well as other interdisciplinary projects, has a lot to learn from the example of the physicists searching after a theory of everything.

Scientists have claimed to support various theories because the theories have such aesthetic qualities as elegance or symmetry, and they play with the names they give to their discoveries at the sub-atomic and cosmological levels. Meanwhile some literary theorists denounce the globalizing statements of "humanists" and celebrate the scientific directions that the various manifestations of poststructuralism offer. Within this array of emerging claims, a field such as science and literature ought to be a natural. Some scholars have pointed out the host of underlying assumptions shared by science and literary study (see Warner [1985]; Hayles [1984]; Gregory [1988]). Science and literary study share a growing conviction about the importance of intellectual inquiry, although in neither science nor literary study is the agreement on these matters either total or widespread.

But these areas of convergence are far from sharing the same intellectual boundaries that a single field could claim. Within the realms of literary criticism, studies drawing on science are apt to be regarded as marginal work in literary study, appearing often as just another attempt to drag in a model from another, more prestigious, field as a way of achieving greater legitimacy.<sup>2</sup> Scientists are not likely to regard studies in science and literature as science: Its results cannot be tested, the theories do not lead to new discoveries. Furthermore, as Fish points out (19-20), once the material from the second discipline is appropriated, it is changed from its original state, as Heisenberg would predict.

Literature and science, considered as a field, needs to look at the claims it makes about its activities and to establish the basis for its work, and so demonstrate that interdisciplinarity can be done. If it exists only as an interest group of people who happened for a variety of reasons to pick up on the connections, then it has only the same claim that other literary interest groups have as they pursue the narrow and marginal concerns defined by

their areas of interest. In fact, literature and science (as a field) is likely to tend toward wider interest and applicability in this way because both “literature” and “science” are terms that tend to move beyond discipline boundaries to broadly inclusive perspectives extending beyond the limits of established disciplines. Literature, while it has come to refer to imaginative writing, derives from a much broader use of its term to include all writing. Science is something that is almost always practiced within disciplines that are part of science, but not co-extensive with it. Those disciplines themselves have a constant dialogue among themselves as they try to accommodate the projects and the interests which transcend the objects and the methods of a given discipline and seem to require the collaborative efforts of a number of research disciplines. Sometimes, as in the case of biochemistry, these interdisciplinary efforts may institutionalize themselves as new disciplines. Others, such as neurobiology, may more often live with the tension of crossing disciplinary lines. Science tends to be a globalizing perspective as well as literature.

Stephen Hawking’s *A Brief History of Time* (1984) raises very important questions about the relations between literature and science, especially as it explores the nature of the claims it wants to make for physics. Hawking, of course, has distinguished himself with the discipline of physics, but he crosses the boundaries of the discipline when he addresses the question of a theory of everything and begins what might be the ultimate interdisciplinary discourse. Hawking suggests in the beginning that he entered upon the writing of the book to address questions which he says are of concern to all people: Where did the universe come from? How and why did it begin? Will it come to an end, and, if so, how? Hawking proposes to write his book so that a person without a scientific education can understand the basic ideas about the origin and fate of the universe. At the end of the book Hawking again addresses the reason for writing the book:

However, if we do discover a complete theory, it should in time be understandable in broad principle by everyone, not just a few scientists. Then we shall all, philosophers, scientists, and just ordinary people, be able to take part in the discussion of the question of why it is that we and the universe exist. If we find the answer to that, it would be the ultimate triumph of human reason — for then we would know the mind of God. (175)

Hawking is attracted to developing a theory that will be simple enough in its conception to be accessible to all educated people. Earlier in the book he offered an anecdote which we can believe in: his aim in the book is to provide that picture that can be accepted by all people.

Hawking's enthusiasm for the project and the skill with which he pursues it are welcome and certainly useful to people interested in literature and science. But the urge toward certainty that drives disciplinary in the first place requires a more careful examination of the implications of pursuing this effort at universal understanding. At a time when literary theory has come to include the notion of differences and discontinuities as an inevitable part of any literary transaction, it is difficult to accept the notion of a theory of the world that is so fundamental that it encompasses everything and is articulated in a language that is understandable to all. Specialized and professionalized areas of inquiry have arisen in response to the apparent increasing complexity and diversity of knowledge since the Renaissance. Indeed, the establishment of relativity and quantum mechanics as the informing principles in the understanding of matter almost requires that distinctiveness and disparateness be part of any convincing theory of the world. The Copenhagen interpretation of relativity settled the argument between Einstein and Bohr on this implication of relativity. So, after sixty years of coming to terms with the relative and local aspect of knowledge, it is with some care that scholars should approach the prospect of a single theory that will explain everything.<sup>3</sup>

Although most physicists accepted the Copenhagen interpretation, Einstein never gave up looking for a way to identify the underlying forces in the world that would modify the general theory of relativity to rid it of its radical indeterminacy. Heisenberg, Pauli, and Eddington also spent much of their later careers looking for a way to unify the forces of nature in one theory. More recently, David Bohm has continued this attempt to find within relativity a way to explain all of the universe. The dream of a unified theory still fires the imaginations of many physicists who have pursued variations on the possibilities to the point that they themselves can now no longer have any possibility of proving the theories they have developed (Parker [1986]; Crease and Mann [1986]; Kaku and Trainer [1987]). Hawking's confidence in the work of theoretical physicists may be misplaced. But the questions he raises in taking this step offer an opportunity to look at the connections within the projects that all scholars undertake. If unified theories raise the possibility of explaining everything, then where do scholars and discrete dis-

ciplines fit in such a model of the universe? Will all disciplines be reduced to looking for truths in the sixth decimal place?

The question becomes one of areas of interest and power very quickly (Rouse, 1987). If physicists have developed the theory that explains everything, then all forms of inquiry will be derivative from that. The local engagements of people with their experience may at first seem far removed from the theory of everything, but constant use and presence as a framework of reference will bring the theory closer to ordinary experience as it comes to be accessible to more and more people as an explanation for their various and local realities. Once the unified theory has been adopted, the information about the world flows most importantly from the theory and not importantly toward the theory. The impetus for testing the theory will be diminished except as a researcher intends to challenge the theory itself with the results of an experiment. This would explain why a single theory might be the ultimate free space that Fish accuses interdisciplinarity of claiming.

The way information flows suggests the relevance of this discussion for literature. As long as physics, and other branches of science, are developing theories about the world, that area of experience often called “reality” in commonsense discussions, literature and its theorizing are marginalized by the status of their objects of inquiry. Fictional worlds are less likely to make a difference in a universe that is shaped by an explanation of the material, real world, and where the material, real world is accepted as the limits of intellectual interest. The second-class status of literary study is reflected in the levels of funding available for the two areas of inquiry. The main cause, however, of this disproportion in the levels of interest in these fields lies in the differing assumptions about the nature of the inquiry each is engaged in. By adopting a pluralist version of its endeavor, literary study has avoided the constraint of making sure that its efforts be evaluated according to the relevance and the usefulness of their content. By not accepting the responsibility to measure the rightness of its results, literary study has been able to sidestep the difficulties of theorizing and then validating the theories in experiments. But the price literary study has paid is that it cannot command attention. There are no necessities that literary study can point to which compel theorists in other areas with the products of literary scholarship and criticism. Pluralism also means that no one else has to take literary study seriously.

The continuous nature of GUTs and their extension into all realms of human endeavor create a model whereby all participants in the discussion have access to the material and they have a responsibility to be aware of the theories and of the reasoning behind them. Even though Hawking does not seem to anticipate it, his open and accessible world of one theory also re-

quires that participants in the discussion manipulate the implications of the theory as well. As participants in the discussion, rather than as mere recipients of the good news from on high, the people Hawking anticipates including will also be generating their own variations on the laws and may be changing aspects of it themselves.

But in the ways that William Paulson's *The Noise of Culture* (1988) has suggested, literature and science share sufficient aspects of their assumptions and procedures to be regarded as variations on a common discourse. It is at this point that the ambivalent standing of literature and science needs to be resolved. Paulson points out that the range and scope of works that we identify as literature have become more and more circumscribed and that literary study, which now has become one discipline among many, is a shrunken form of all study before there were disciplines (24-25). When "literature" is used in connection with "science," the usage seems to assume this overarching scope similar to science gathering up so many disciplines within itself. *The Noise of Culture* goes on to delineate the connection between the two in terms of information theory and self-organizing systems and shows in wonderful detail the nature of the relationship between literary study and other forms of inquiry.

This habit of treating the two as equals suggests that there is a sense of a common discourse shared by people interested in both literature and science, and that it is very similar to the conviction which drives so many physicists to look for a grand unified theory. It seems unacceptable to them to live with the discontinuities present in working with two different mechanics and two levels of forces controlling the universe. Robert Crease and Charles Mann (1986) describe the urge as follows:

Although unification is central to physics, an idea that regulates the discipline, the subject occupies a curiously ambivalent place in physicists' hearts. There is no proof that it is possible, merely the aesthetic conviction that a simple, primary cause can be found, that humanity can encompass the basic components of all physical phenomena in a simple, unique, and elegant theory. (p. 7)

The impulse toward a unified explanation of experience warrants the effort to find a way of recognizing and valuing the differences in experience while working toward an overarching understanding of all experiences. Interdisciplinary inquiries such as literature and science may not be claiming a unified free space for the results of their studies so much as they arise from a transcending urge to explore questions not anticipated by disciplinary

study and sanctioned by prior agreements about the value of inquiry and its methods.

Hawking's *A Brief History of Time* (1984) describes the steps in the process of developing a theory that will account for all the variables revealed in physics in this century while maintaining the universal principles that must be present in an acceptable unified theory. But Hawking, perhaps more than any other physicist, seems to reinforce the perception of science as moving forward due to the extraordinary brilliance of one mind working in isolation. Even as Hawking's book describes the progress made toward a unified theory that Hawking hopes will lead to a universal understanding, his presence as a major force in that progress suggests that physics and other speculative disciplines are the isolated preserve of a few brilliant minds. Hawking deserves our admiration as one of the great discoverers in physics, but that awe is a measure of the distance between us and him and it suggests how little likely we are to participate in any discourse with him. This enforcement of the singularity and separateness of traditional concepts of science creates a contradiction in our reception of *A Brief History of Time*.

Hawking promises a widely accessible, transcendent discourse, but his presence as the great mind working on difficult problems reminds his reader of the intense pressure toward isolation and specialization within disciplines. David Bohm's *Wholeness and the Implicate Order* (1980), however, presents a model of how scholars can conceive of their pursuit of discipline-specific questions as harmonious with the larger intellectual pursuits necessary for a world organized within the model of a single theory and without disciplinary work being trivialized. Bohm's work does not lead to a unified theory itself. Rather, he has developed a version of the world that anticipates unification of understanding on the assumption of finding the hitherto hidden variables within quantum theory. Bohm's interest, along with the concerns of those pursuing GUTs, lies in reconciling the contradictions between the two major developments in modern physics — quantum theory and general relativity. The book develops a model of human activity which embraces both individual moments and connected participation in the general movement of life.

Bohm begins from the notion that the new theories of physics require that theorists move away from a notion of life as constituted of building blocks or of any other conceptual framework that reinforces the fragmentary sense of the world inherited from the Enlightenment. Bohm suggests that language systems that operate through "subject-verb-object" frameworks bring about a fragmentation of experience. He argues that new theories of unity require



a new use of language (not a new language itself) that will place most of its emphasis on verbs and so emphasize the centrality of motion and action in the new model. Bohm's innovations regarding language take familiar linguistic forms and treat them in a way that enables the constant sense of process and movement that he believes is necessary for a changed understanding of the new realities.

For instance, Bohm offers his version of a word for seeing which he suggests as preferable to "see." He goes back to the Latin *videre*, which is ordinarily translated as to "see." He introduces "vidate" as the English form for the act of seeing, but the substituted form is meant to mean more than seeing in the mere visual sense. Rather, it is defined as referring to "every aspect of perception including even the act of understanding, which is the apprehension of a totality, that includes sense perception, intellect, feeling, etc. (e.g., in the common language 'to understand' and 'to see' may be used interchangeably)" (36). Although a quick look at a dictionary shows that *see* already includes these wider meanings of "see" without the development of new forms, Bohm's discussion looks for a way to keep the content of a word's meaning and its total function in its context unified. Bohm is not looking for a new Esperanto as a way of representing a unified reality; his discussion of the "rheomode" (*rheo* is Greek for "flow") is meant to focus attention on the need to change our language habits to reflect our participation in a unified universe. Bohm's discussion of the rheomode serves as an example of the kind of care individuals need to exercise to incorporate the insights gained from our development of a unified view of the universe into ordinary, day-to-day activities. The awkwardness of Bohm's attempt at developing new forms is a measure of how much work is involved in reshaping behaviors in light of theoretical discoveries.

Having developed the vocabulary, or at least the blueprint for one, for a unified view of experience, Bohm presents an extended discussion of ways in which thought and reality can be seen as elements in an ongoing process, a process that develops, evolves, and unfolds without losing touch with contradictory or competing elements. Reality and thought are seen as harmonious parts of a world in a productive flux where process, sometimes reversible and sometimes irreversible, is the common experience for all participants. Bohm locates the rationale for his new version of order in what he anticipates will be the implications of the hidden variables in the quantum theory. Bohm seeks to make "a beginning in the process of developing a coherent view of what kind of reality might be the basis of the correct mathematical predictions achieved in the quantum theory" (xiv). Building on his discussion of quantum

mechanics, he reviews notions of order from Descartes up to the present as a way of suggesting that his alternative, which he terms the “implicate order,” improves on previously available views.

Bohm offers the relationship between the lens and the hologram as an introduction to the nature of the difference he is proposing in approaching reality:

What is being suggested here is that the consideration of the difference between lens and hologram can play a significant part in the perception of a new order that is relevant for physical law. As Galileo noted the distinction between a viscous medium and a vacuum and saw that physical law should refer primarily to the order of motion of an object in a vacuum, so we might now note the distinction between a lens and a hologram and consider the possibility that physical law should refer primarily to an order of undivided wholeness of the content of a description similar to that indicated by the hologram rather than to an order of analysis of such content into separate parts indicated by a lens. (147)

Observation, then, is not focused on the content isolated between two coordinates; rather, it looks at the simultaneous activities of multiple aspects of the experience just as a hologram presents the entire content of its image at once.

Bohm’s point in all this is that consciousness and the physical world are part of a continuous, constantly moving universe, just as the implications of the quantum mechanics predicted. What is different about Bohm’s model is that he insists that the discontinuous elements of the quantum mechanics are part of the larger, continuous order and that those particularized aspects of experience represent a stage in the movement of the universe rather than a competing, alternative view of the universe. Without denying the individual, particularized aspects of reality, Bohm develops a model that enables participants in the discussion to work with individualized parts of their experience while sensing its connection with the larger patterns and development of the universe.

I would like to recommend Bohm’s work as a “how-to” book for approaching issues in science and literature by providing an example and a vocabulary which presumes a unified, but not wholly defined or determined, universe. Bohm acts on the assumption that single, unified principles are at work in the universe before those principles have been thoroughly elucidated. The confidence and ease which Bohm exhibits offers encouragement for people in literary study and people in science to pursue their in-

quiries with a sense of material importance and with a responsibility to take each other's discoveries seriously. Disciplinary boundaries should not prevent exchanges in a discourse which proceeds from an assumption of a grand unified theory. The underlying continuity enables all participants in the discourse to share information and discoveries and discourages any retreat into disciplinarity or a relativism aware only of differences.

This practice of treating literature and science as a continuous discourse ought then to extend to the classrooms of teachers in literature and in science. The presence of a unified discourse requires that teachers expect their students to know something about both areas and to build in mechanisms to make the awareness of both areas a central part of any course's objectives. In a similar fashion, a unified discourse warrants faculty members to ask that the curricular requirements for which they are responsible reflect a sense of the integrated aspects of literature and science.

At the farther reaches of faculty influence, scholars interested in literature and science ought to ask that all the communities within and without the academic community operate from these assumptions about the unification of intellectual fields. GUTs offer a model for the unification of academic efforts and that unified theorizing, although presenting tremendous difficulties in institutionalizing it, creates the basis for literature and science commanding the attention and the respect of all those who make up the conversation that leads to a universal interest in and understanding of the question that provided the occasion for Stephen Hawking's book. Although such a unified sense of experience is a long way off, it provides a goal that is consistent with the kinds of efforts devoted to GUTs.

Physicists tolerate very well the competing demands of their discipline and the urges to explain everything. Fish's position notwithstanding, literary scholars can operate with the same tolerance. Literature and science, as it pursues its sense of shared concerns, can operate a legitimate area of inquiry *in anticipation of* the articulation of its boundaries. As experience proves the sense of shared concerns mistaken or misdirected, the practice and the anticipated disciplinary definitions will change. Scholarly enterprises are shaped and tested by their disciplines, but are not wholly determined by them. When the shared interests continue, discipline-like formulations and practices will emerge. As these formulations lose their power, the shared interests will develop different formulations. Literature and science has not waited for a disciplinary shape prior to beginning its work, nor does it need a fully articulated discipline of its own to proceed. The search for grand unified theories suggests that scholars can tolerate the push toward globalizing perspectives and the competing urge to get it right and

true within disciplined inquiries. The simultaneous presence of these elements enriches the profession, specific disciplines, and the work of individual scholars. Some will find real love, some will find it and then have to break up, as hard as that may be. The uncertainty about what happiness is and how to get it has inspired many singers and searchers, but searching, in whatever form, is something we can and should do.

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## Endnotes

1. Elizabeth Sanchez (1990, p. 76) has answered this suggestion by saying that of course you can and shows how.
2. In an address to the Indiana College English Association (October, 1989), Fish extended his argument on interdisciplinarity to include this charge.
3. Such skepticism is certainly a central part of Fish's argument. For a discussion of skepticism and Fish, see William E. Cain (1984, pp. 51-64). Our skepticism comes from other places as well. In regard to misplaced enthusiasm about the prospects of physics, we remember the comments attributed to Lord Kelvin that announced that physics had explained all of known reality sufficiently and that the only clouds on the horizon were a few details about light and heat that needed to be taken care of. These were, of course, the problems that Einstein addressed in his 1905 and 1916 papers on relativity. Similarly, in 1893 John Trowbridge of Harvard University warned his bright graduate students away from physics because he thought that the essential business of physics had been completed, and in 1894 Albert Michelson is supposed to have said that "most of the grand underlying principles have been firmly established and further advances are to be sought chiefly in the rigorous application of these principles to all phenomena which come under our notice. ... The future truths of physics are to be looked for in the sixth place decimals" (Crease and Mann, 10). Hindsight is appalled by the smugness and misplaced confidence of these pronouncements. But that hindsight should also make us wary of the globalizing comments of physicists working on grand unified theories.

## References

- Bohm, D. (1980). *Wholeness and the implicate order*. London: Routledge.
- Cain, W.E. (1984) *The crisis in criticism: Theory, literature and reform in English studies*. Baltimore: John Hopkins University Press
- Crease, R.P. & Mann, C.C. (1986). *The second creation*. New York: MacMillan.
- Fish, S. (1989). "Being Interdisciplinary Is So Very Hard to Do." *Profession 89*. New York: The Modern Language Association, pp. 15-22.
- Gregory, B. (1988). *Inventing reality, physics as language*. New York: Wiley.
- Hawking, S.B. (1984). *A brief history of time*. Toronto: Bantam.
- Hayles, N.C. (1984). *The cosmic web*. Ithaca: Cornell University Press.
- t'Hooft, G. (1989). "Gauge Theories of the Forces between Elementary Particles" in *Particle physics in the cosmos*, Richard A. Carrigan, Jr. and Peter Trower (Eds.). New York: Freeman.
- Michio, K. & Trainer, J. (1987). *Beyond Einstein, the cosmic quest for the theory of the universe*. Toronto: Bantam.
- Parker, B. (1988) *Einstein's dream, the search for a unified theory of the universe*. New York: Plenum.
- Paulson, W. (1988). *The noise of culture, literary theory in the age of information*. Ithaca: Cornell University.
- Rouse, J. (1987). *Knowledge and power, toward a political philosophy of science*. Ithaca: Cornell.
- Sanchez, E. (1990). "Profession Forum." *Profession 90*. New York: Modern Language Association of America, p. 76.
- Warner, C. (1985). "Parallels Between New Paradigms in Science and in Reading and Literary Theories: An Essay Review." *Research in the Teaching of English*, 9(3), 298-316.