



## Conceptual Foundations for Multidisciplinary Thinking.

Review Author[s]:  
Courtney Brown

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questions that her reading of Gilligan and the discursive subject she theorizes will face—her responses to these concerns will not satisfy all critics, but she seems to invite and perhaps even welcome debate.

The book's conclusion focuses on the implications of the discursive self for feminist theory—Hekman's most important contribution to the continuing debate about moral theory is the development of a discursive subjectivity that is not absolutist but is also not relativist. She argues that "just as there are multiple voices, so there are multiple moralities" (p. 160). Here is not an argument for the absence of ethics and standards, but rather a call for judgments that are contextual and local. With the publication of *Moral Voices, Moral Selves*, Hekman makes a strong case for this position and may in fact elevate the debate about moral subjectivity to a new level.

**Conceptual Foundations for Multidisciplinary Thinking.**  
By Stephen Jay Kline. Stanford: Stanford University Press, 1995. 337p. \$45.

Courtney Brown, *Emory University*

Stephen Jay Kline undertakes an ambitious task with his book *Conceptual Foundations for Multidisciplinary Thinking*. His goal is to offer a schema, a philosophical template, within which the next generation of thinkers—all thinkers—can find an intellectual connectedness. This is the idea behind his focus on "multidisciplinary thinking." Thinkers in all disciplines, in his view, will need to decompartmentalize their way of thinking and face the new intellectual horizons with a more catholic, wide-angle perspective.

At its core, Kline's argument rests on the understanding that nearly all phenomena affecting humans involve numerous inputs, outputs, and feedback channels that together constitute variously complicated systems. He views single disciplines as having too narrow a perspective regarding many phenomena. The cause of this narrowness is not intellectual incompetence; rather, it results from the evolution of intellectualism characteristic of disciplines. Kline outlines a general model of this evolution and, in a sense, posits an explanatory theory of the historical development of human thought. The idea of systems is crucial here, because disciplines develop their own view of the components and processes associated with phenomena of interest to them. These views are incomplete system overviews that lead to what Kline calls "truth assertions." Truth assertions are statements or conclusions about phenomena that are based on these incomplete views, and a circular catch-22 situation develops in all disciplines in which modifications of the incomplete views are made based on previously declared truth assertions, which leads to new truth assertions, and so on.

While Kline does not make the connection, his analysis finds considerable correspondence with the language games described by Wittgenstein. These games are incomplete representations of systems of things (read in this, inputs, outputs, and feedback channels), and the systems have an internal logic that is not entirely understandable from outside the system. Truth assertions arising from these incomplete systems are generally overly simplistic and ultimately false, at least partially. Cross-fertilization with ideas originating from outside these systems (i.e., from many other disciplines) is the solution to this myopic dilemma.

Kline's criticism of this state of affairs is enhanced by his

second primary observation, that of complexity. Both human thought—as it has evolved in separated disciplines—and the physical systems within which we live exhibit a level of complexity across and within systems that makes it impossible to understand the important phenomena that are affecting humans today from the perspective of any single incomplete system of thought (i.e., any one discipline). Thus, in brief, interconnected systems and high levels of complexity yield a situation in which multidisciplinary approaches to understanding and problem solving will produce the real growth industry in the next generation of scholarly thought.

It is important to note that Kline's concept of multidisciplinary thought is distinct from what he labels "interdisciplinary." Interdisciplinary approaches typically involve the combination of a minimal number (say, two) of intellectual schema from separate disciplines. However, Kline finds that contemporary situations require the inclusion of areas of thought originating from much more than this minimal set of corresponding disciplines. He lists three examples (in chapter 14) in which comprehensive solutions to scientific puzzles involved interrelated components addressing—among other areas—genetics, technological development, social learning, cultures, and primate evolution. Thus, Kline likes theories that are as ecumenical as possible, and he finds problematic any theories that are narrowly limited by the intellectual shortsightedness that he finds typical of single disciplines.

Kline's argument has significant merit. He is undoubtedly correct in pointing out that disciplines develop their own internal ways of looking at the phenomena that interest them. This includes the development of language (jargon) as well as explanatory theories. It is also true that most theories would be better if they included greater descriptions of the cross-system complexity to which Kline has drawn our attention. Many of us probably do look at the world in too simplistic a fashion, and I find no fault in Kline's observation if this.

The trouble with Kline's approach rests in his solution. It is often easier to discover a problem than it is to solve it, and this situation is typical in this regard. Kline offers no clear blueprint for knowing from which disciplines one needs to borrow in order to construct a satisfactory theory. His call is for scientists to be as broadly knowledgeable about any particular phenomenon as possible before constructing theories and declaring truth assertions. This appeal is sensible enough; but are his standards so high that only rare individuals who are clearly in the class of paradigm busters can achieve them? What is to become of the remainder of science that evolves incrementally, with each new development being built on a foundation of previous research? One gets the sense from Kline that this incrementally evolving component of science is somehow inferior, or even faulty, because of the narrowness of its scope. I have trouble with this conclusion that I draw from Kline's argument, even though I find great truth in his basic characterization of the scientific enterprise as being too compartmentalized into narrow disciplines that do not sufficiently well communicate between themselves. It is unfortunate that Kline does not have a more sympathetic understanding of the need for specialization once intellectual leaders establish a new terrain. Nonetheless, his criticism of the current situation of compartmentalization in the absence of cross-communication is well stated, and many readers will find his approach to be both refreshing and enlightening.