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In this paper I take a look at what semiotics has to offer inquirers. I look at its implications for epistemology and method, especially in light of its support for multiple realities. Inquirers will find it provides a framework in which they can find a place for any method that does not objectify the sign process and in which they as authors of inquiry will be made visible to readers of that inquiry.

The past two or three decades have seen significant discussion concerning changing paradigms in inquiry. Because of the closed nature of opposing paradigms the debate can become difficult to follow. This is because the assumptions made by the promoters of opposing paradigms may be so different as to make their arguments incomprehensible to one another. Promoters of an alternative paradigmatic position cannot afford to be held hostage to the terminology of the established paradigm since this terminology is steeped in the assumptions of the established paradigm. Attempts to do so (e.g., Lincoln & Guba, 1985) have resulted in the impression that a viable alternative paradigm is not being proposed at all, instead, merely a rejection of or a reaction to the established one. Using the terminology of the established paradigm, then, can hamper attempts to justify the establishment of an alternative paradigm for its own positive reasons. If proponents of opposing paradigms cannot use one another's language, is there some language that can cross paradigmatic boundaries? I suggest that semiotics can provide that common language. If one accepts Peirce's (CP5. endnotes) contention that the universe is perfused with signs, then signs provide a common denominator that can become a bridge of communication between fields of endeavor. If the sign is the essential matter of the universe, then semiotics encompasses all forms of inquiry; it does not espouse particular methodologies. Indeed, Deely (1990) argues that semiotics represents a truly radical, nonideological paradigm shift that can provide a foundation upon which a number of methods will flourish.

What is Semiotics?

Semiotics is the study of sign action (semiosis). As such, it is a purely human endeavor. All life forms engage in semiosis, all use signs, only humans know they exist. Only humans engage in inquiry into semiosis, or sign activity. As Deely (1990) observes, "at the heart of semiotics is the realization that the whole of human experience, without exception, is an interpretive structure mediated and sustained by signs" (p. 5).

A sign is anything that stands for something else. David Sless (1986) argues that the "stand-for" relationship is the lowest common denominator in human experience. Reduction beyond this point is impossible. Semiotics, or the study of semiosis, is concerned with the ways we represent our world to ourselves and to others. It requires that we reflect on our ways of understanding and communicating. It is also a way of finding commonalities between disciplines. If we want to know what art history has in common with anthropology, for example, we might consult a semiotician. Semiotics is above all else a point of view, a way of looking at the world (Deely, 1990).

When I talk about semiotics, I am speaking of the tradition that Deely attributes

to Poinsot-Locke-Peirce, and not to the tradition attributed to Saussure. Unlike Saussure's semiology, which takes its principal inspiration from human language and speech, semiotics is broader and more fundamental, involving the physical realm and the biosphere as well as the *Lebenswelt* (i.e., experience specific to the human species; Deely, 2001). All life forms engage in semiosis, which Sebeok (1991) refers to as a *criterial attribute of life*. Only a small percentage of semiosis takes place in the Lebenswelt. In fact, most semiosis is chemical (Sebeok, 1991). This makes Saussure's semiology a subdivision of semiotics, the study of that type of semiosis that is species-specifically human.

A sign is not that which it represents; it only resembles, refers to, or is somehow associated with that which it represents. In addition, a sign is indifferent to the actual existence of what it represents. This is what makes deception and lying possible. Hence, Eco (1979) says a sign is anything that can be used to tell a lie. This need to lie may be at the very foundation of the creation of language. "The single most striking feature of human language [is] its power to convey the nonexistent with a facility every bit equal to its power to convey thought about what is existent" (Deely, 1990, p. 17). This peculiar characteristic of a sign also makes mythology and fear of the nonexistent possible. Hence, uncertainty is a built-in characteristic of sign activity.

Divisions of Signs

The number *three* is very important in semiotics. A fundamental difference between semiotics and most other points of view (including semiology) is that it organizes itself into trichotomies rather than dichotomies. So, for example, there are basically three ways a sign can stand for its object: as an icon, as an index, or as a symbol. Peirce subdivides signs into further classifications, but I intend to deal only with these three basic classes. The basic classes are identified with the concepts firstness, secondness, and thirdness.

Firstness is the mode of being that is what it is without reference to anything else (Peirce, 1958)—it is associated with qualities: color, texture, shape, etc. This is similar to what Phillips (1990) refers to as a low-inference variable, something whose characteristics are generally universally agreed upon. Qualities normally have an iconic relationship with their objects (there is a resemblance).

Secondness is a mode of being that is what it is in respect to a second, but regardless of any third—it is associated with effort and opposition (Peirce, 1958). Secondness comes in the recognition of "the other." It is the recognition that there is self and not self, it comes into play in the separation of field and ground, it is opposition. Opposition is the state of brute existence,[1] one thing acting upon another normally has an indexical relationship with its object. An index represents its object because it is affected by that object in the way that smoke represents fire, or as tracks in the woods represent a deer (there is a causal relationship).

Thirdness is the mode of being that is what it is, bringing a second and third into relation with each other (Peirce, 1958).

> It seems a strange thing, when one comes to ponder over it, that a sign should leave its interpreter to supply a part of its meaning; but the explanation of the phenomenon lies in the fact that the entire universe—not merely the universe of existents, but all the wider universe, embracing the universe of existents as a part, the universe which we are all accustomed to refer to as "the truth"—that all this universe is perfused

1. Note that this suggests that firstness is pre-existence. One can say that firstness is possibility.

> with signs, if it is not composed exclusively of signs. (CP5.448n)

The sign mediates between an object and the interpretant through law or reason (CP2.311, CP8.343). A symbol is an example of this form of thirdness, its association with its object is arbitrary, a social convention perhaps. Words are examples of symbols.

Signs themselves have all three aspects—an iconic, an indexical, and a symbolic component. As sign users all animals engage in interpretation, which involves thirdness, albeit a degenerate form. Deception, for example, is common in nature. The interpretive aspect of a sign may emphasize any one aspect of the sign such that a sign may be considered primarily an icon, primarily an index, or primarily a symbol. So, the association of the concept *deer* or *food* with tracks in the wood by some third party is symbolic even though the relationship of the deer to the tracks is indexical. Yet, one may consider the indexical aspect of the sign the important relationship if one is tracking the animal. Our own discussion of the tracker may focus on the interpretation itself and emphasize the aspect of thirdness: the word *deer* or the image of the animal created in the mind.

So the application of these three concepts is relative to the context that the observer establishes; they are context dependent. This is also true when one considers representamens, or things that represent themselves. Anything that represents itself rather than something else is, by definition, not a sign. At one level a specific dog can be said to represent that specific dog, or represent itself. However, our knowledge of that dog is itself a compilation of sensory perceptions, smells, sights, textures, that stand for that dog. In the first case, the interpreter, the observer has arranged the sensory input into an entity[2] and it is this arrangement rather than its parts that comes to stand for the organism itself. In the second, the thing (dog) as a sign becomes an index that represents the combined sensory information that brought it about. It is in this way that one can understand that some semioticians conclude that all things are signs and others conclude that in some cases representamens (non-signs) exist. While the environment is perfused with signs, we do not treat everything as a sign at any one point in time.

Semiosis provides the living being a way of approaching a very complex process in a way that makes creations of models of reality possible. Semiotics provides the human being a way to make these models visible and thereby available to study, scrutiny, and criticism. According to Sebeok (1991):

> In this view, semiotics is not about the "real" world at all, but about complementary or alternative actual models of it and—as Leibniz thought—about an infinite number of anthropologically conceivable possible worlds. Thus semiotics never reveals what the world is, but circumscribes what we can know about it; in other words what a semiotic model depicts is not "reality" as such, but nature as unveiled by our method of questioning. It is the interplay between "the book of nature" and its human decipherer that is at issue. (p. 12)

When we engage in inquiry we are looking for coherences within our own experience relating to the object of our study, not for coherences within the experience of the object (Maturana, 2002). All inquiry is filtered through our own experience. There is no way to understand a thing as it is in itself, only as it is within human experience. In other words, human understanding is part of the Lebenswelt regardless the subject of that understanding.

2. See T. von Uexküll (1987) for a description of how sensory *input* is projected into the environment.

Epistemology

What is the relationship of the knower to the known? Problems of epistemology have been around since the earliest days of philosophy. Historically, there have been basically two choices: some form of realism or some form of idealism. They represent an argument between promoters of sides of a mutually exclusive dichotomy. Unfortunately, neither position can account for what we know about ourselves and the world we live in. Realism cannot account for cognitive processes that are such an intimate and familiar part of each of our lives and idealism cannot account for the ability of living entities to interact effectively with the outside world. The problem inherent in this dichotomy is well summarized in the work of Maturana and Varela (1987), who use the terms representationalism (realism) and solipsism (idealism):

> In fact, on the one hand there is the trap of assuming that the nervous system operates with representations of the world. And it is a trap, because it blinds us to the possibility of realizing how the nervous system functions from moment to moment as a definite system with operational closure ... On the other hand, there is the other trap: denying the surrounding environment on the assumption that the nervous system functions completely in a vacuum, where everything is valid and everything is possible. This is the other extreme: absolute cognitive solitude or solipsism, the classic philosophic tradition which held that only one's interior life exists. And it is a trap because it does not allow us to explain how there is a due proportion or commensurability between the operation of the organism and its world. (p. 133)

Realism falls noticeably short when one considers the results of scientific experimentation that demonstrate the nervous system does not operate like an open system, with inputs and outputs, processing information from the outside and producing appropriate behavior. Rather, it operates like an operationally closed system that is constantly in search of equilibrium. Its structure (component parts, what it's made of) determines what changes in the environment will perturb it and how it will change in order to maintain that equilibrium (see Maturana & Varela, 1980, 1987). Maintaining equilibrium results in conserving both organization (identity as a particular type of entity: a frog; a cat; a human being) and adaptation to the environment in which the entity lives. None of this requires the computation of a map of the outside world to happen.[3] It can be explained by the history of interactions where the species in question and the environment have mutually come into being, each undergoing change because of the presence of the other, but only undergoing change that is determined by their own structures.

According to Sebeok (1991), the "distinction between object (O) and sign (S) raises profound questions about the anatomy of reality, indeed about its very existence" (p. 12). He claims that there are two possibilities:

> In the age-old philosophical quest for reality, two alternative points of departure have been suggested: that the structure of being is reflected in semiotic structures, which thus constitute models, or maps, of reality; or that the reverse is the case, namely that semiotic structures

3. This argument is from Maturana and Varela (1987). It is supported by J.W. Sperry's experimentation on the visual field of the frog which shows close coordination between the frog's visual field and its behavior and none between the actual spatial relationship of predator and prey, as determined by an observer, and the frog's behavior.

> are independent variables so that reality becomes the dependent variable. Although both views are beset by many difficulties, a version of the second, proposed by the remarkably seminal German biologist Jakob von Uexküll (1864-1944), under the watchword Umwelt-Forschung—approximately translated as "research in subjective universes" —has proved to be in best conformity with modern semiotics (as well as with ethology). (1991, p. 12)

From the perspective of semiotics, idealism has an advantage over realism because it at least recognizes "that when we observe anything, that observation already presupposes and rests within a semiosis whereby the object observed came to exist as an object ... in the first place" (Deely, 1990, p. 5). So, given a forced choice the semiotician would probably select the route of idealism. Having expressed a preference for idealism Deely (1990) declares that semioticians must move beyond it. His reason is that idealism is limited to language and as such cannot go all the places semiosis can: zoösemiosis, phytosemiosis, and physiosemiosis. Deely (1990) calls the idealist/realist problem a false dichotomy and, like Maturana and Varela, Deely insists that the appropriate way to deal with this age old dichotomy is to supersede it. The reader must already suspect the problem that a semiotician has with dichotomies: they are inherently incomplete. A central characteristic of Peirce's semiotic is its organization into trichotomies. In their extreme forms both idealism and realism can account for only two parts of a semiotic trichotomy. In the case of realism the physical world imposes itself upon the living organism to make it adapt. In the case of idealism the cognitive processes create the physical world. Both are examples of secondness, brute force, mere opposition; neither allows for interpretation. In the first instance this is because there is no internally directed cognition or structural determination; in the second because everything conceived of exists. Both these positions stand in marked contrast with experience common to us all. We each have a rich inner life and we all have the experience of conceiving of things that do not exist, from unicorns and minotaurs to the shortcut that was going to save twenty minutes of travel time. Deely (1990) suggests the following trichotomy: what is unknown about the psychological world, what is unknown about the physical world, and what is known. This trichotomy is consistent with Deely's adaptation of Uexküll's (1982) theory to semiotics.

Deely (1990) believes that Uexküll has provided the semiotician with an essential tool for understanding semiosis that is not human. The way that Uexküll deals with the problem of epistemology is to alter the location of reality. In his Umwelt theory, reality is not to be found in the outside world or in the mind of the observer:

> Reality, to which all is subjected and from which everything is deduced, is not to be found "outside," in infinite space, which has neither beginning nor end, and which is filled with a nebulous cloud of elementary particles; nor is it to be found "inside," within ourselves and the indistinct, distorted images of this external world created by our mind. Reality manifests itself in those worlds —described by Uexküll as Umwelten (subjective-self-worlds) with which sense perception surrounds all living beings like a bubble—clearly delineated but invisible to outside observers. ... This ultimate reality ... reveals itself through signs. These signs are therefore the only true reality; and the rules and laws under which the signs and sign processes communicate themselves to our mind (Gemut) are the only true laws of nature. (T. von Uexküll, 1987, pp. 148-149)

The tool that he has provided is a method called Umwelt Reconstruction; it is a form of participant observation, different from that known to qualitative inquirers, but one that also makes the observer visible. It is an attempt to make it possible for human beings to understand the experience of other species by first coming to understand the lived experience of the observer (a human being) and subtracting out that which they do not share.

Biologists Maturana and Varela (1987) consider the trick of overcoming the dichotomy to be one of walking a middle route, treading, in their terms, the razor's edge:

> The situation is actually simple. As observers we can see a unity in *different* domains, depending on the distinctions we make. Thus, on the one hand, we can consider a system in that domain where its components operate, in the domain of its internal states and its structural changes. Thus considered, for the internal dynamics of the system, the environment does not exist; it is irrelevant. On the other hand, we can consider a unity that also interacts with its environment and describes its history of interactions with it. From this perspective in which the observer can establish relations between certain features of the environment and the behavior of the unity, the internal dynamics of that unity are irrelevant. (p. 133)

So, representationalism and solipsism are components of a broader context in which an observer describes either relations between a unity as a whole and its environment or relations within a unity, the domain in which its components operate. What must be kept in mind at all times is the pivotal role of a mind or knower, an observer.[4] Maturana and Varela remind us that anything that is said is said by someone. For something to be known, it must be known by someone. A trichotomy possible within this theory is: relations within a unity; relations between a unity and its environment; and the observer. This trichotomy is organized differently than Deely's but still conforms to semiotic criteria.[5]

Another way of expressing what has been discussed in this section is to suggest that the universe is made up of possibility. This possibility is the raw material from which a multitude of realities are built. It is the job of the inquirer to investigate the processes and outcomes of these constructions.

Deely (1990) describes the semiotic point of view this way:

> The semiotic point of view is the perspective that results from the sustained attempt to live reflectively with and follow out the consequences of one simple realization: the whole of our experience, from its most primitive origins in sensation to its most refined achievements of understanding, is a network or web of sign relations. (p. 13)

Objectivity and Subjectivity

Objectivity and *subjectivity* are particularly value laden terms. Paradigmatic change has brought with it a certain amount of dispute about how the terms should be used. The use of the term *objective* seems an especially sensitive issue. I was intrigued by an argument between Phillips (1990) and

4. The term observer is meant to indicate an aspect of the human species that arises with language.
5. Imposing triadic relations on the theories of Uexküll and Maturana & Varela is an act of interpretation. Both sets of researchers consider their works to be cyclical in nature. In comparing his father's cyclic model to Peirce's triadic model T. von Uexküll (1987) says the difference is that the former is dynamic and the latter synchronic.

Guba (1990) about whether the term needed to be defined at all that culminated in Phillips saying that "no one at the present conference on qualitative inquiry in education, no matter what his or her personal epistemological position may be, is ignorant of the dictionary definition of *objectivity* or *objective*" (p. 92). Phillips was suggesting that there was one definition of the term and it was obvious. This led me to wonder what the dictionary definition was. I consulted the unabridged Webster's Third New International Dictionary (1986, pp. 1555-1556, 2275-2276) and found that even within definition one, which most closely deals with uses of the term that would interest an inquirer, a number of epistemological positions are covered. Indeed some uses of the term seem diametrically opposed to others. The reader is invited to check Webster's themselves to inspect the variety of options at his/her disposal.

Perhaps the most pervasive effect that the use of the terms *objective* and *subjective* have had on inquiry is their use as a standard against which inquiry is judged. Within an epistemology that considers knower and known as independent of each other objectivity has come to be associated with good research, particularly as it relates to the control of and hopefully the elimination of bias, the exclusion of the observer, and the conduct of "value-free" research. Objectivity can be ensured provided procedures are carefully adhered to. According to Phillips (1990), "*objective* seems to be a label that we apply to inquiries that meet certain procedural standards, but objectivity does not *guarantee* that the results of inquiries have any certainty" (p. 23). This is similar to Lincoln and Guba's (1985) use of the term "trustworthiness." Trustworthiness includes credibility, transferability,[6] dependability, and confirmability. *Confirmability* is specifically intended to replace objectivity and is demonstrated by a procedure called auditing[7] (Lincoln & Guba, 1985).

According to Phillips (1990) the good/bad connotation is fundamental. Subjectivity is considered bias. However, bias is only one of many ways the dictionary defines subjectivity. Rorty (1979) says that one of the primary reasons for confusion has been the tendency to conflate two senses of *objective*, to "represent things as they really are and as characterizing a view that is mutually agreed upon." This could leave the term "subjective" to mean roughly *something that is not agreed upon and therefore wrong*.

Shifting paradigms in the field of inquiry have brought about differing responses to the use of the terms *objective* and *subjective*. One response has been to attempt to apply them to all forms of inquiry as Phillips (1990) does. Subjectivity has often been associated with poor quality research, with biased and value-laden research, and with "unscientific" research. It follows that subjectivity would constitute a sign of an inadequate epistemology. Rorty (1979) has a pragmatic, if not cynical, way of interpreting this way of defining these terms. What is objective is what is agreed upon by a group, what is subjective is what that group finds irrelevant. This is a political position, one that is tied to Sartre's concept of avoiding personal responsibility, and will be discussed further in a section on ethics. Certainly Rorty has a good point in that all inquirers are interested in reaching consensus, whether they call it *objectivity* or something else. Consensus is probably the best that can be hoped for under any circumstances.

Another response is to reject the positive/negative connotation while more or less accepting the terms and using them as a way of contrasting the new with the old. This was the route selected by Lincoln and Guba,

6. Guba no longer considers transferability important to trustworthiness.

7. Other procedures associated with trustworthiness include prolonged engagement, triangulation, and member checks.

in early writings on naturalistic inquiry. Within this framework, objectivity is not redefined; it is simply considered irrelevant. Irrelevant because the possibility of its very existence is questioned. Instead, subjectivity is celebrated.[8] Here subjectivity is Kantian, defined as "of, relating to, or determined by the mind, ego, or consciousness as the subject of experience and knowledge (subjective reality)" (Webster's, p. 2275). This definition of subjectivity does not concede the negative connotations suggested by Phillips; subjectivity is not equated with bias. Rather the diverse ways that reality can be constructed are celebrated. Within this tradition, for example, Peshkin (1988) considers the ultimate goal of research to be better self-understanding.

Yet another response is that taken by Paulo Freire (1970) who uses the terms in a grammatical sense. A subject is an actor and an object is something acted upon (see Webster's, pp. 1555 & 2275). Freire's epistemology is patently political. It is aimed at problem solving by empowering and giving voice to those oppressed or victimized by a dominant culture. The outcome of such research is often predetermined; what is in question is how the outcome can be achieved. Subjectivity is a positive force in such action-oriented research. Objectivity would deal with questions of what aspects of the reality in question need to be changed and how to go about effecting such change.

Of particular interest to us in the context of this discussion of semiotics is a usage recommended by a prominent semiotician. John Deely (1990) redefines objectivity and, to a lesser extent, subjectivity, and he does so in a way that eliminates any connotation of good and bad. Deely defines objectivity as that which is known, and more particularly, publicly known. Webster also provides definitions consistent with this position. Subjectivity is defined as "of or belonging to the real or essential being of that which supports qualities, attributions, or relations: substantial, real—compare with objective" (see Webster's, p. 2275). Objective is defined as "existing only in relation to the mind: relating to the thing considered merely in relation to the knowing subject" and as "publicly or intersubjectively observable or verifiable, independent of what is personal or private in our apprehensions and feelings, of such nature that rational minds agree in holding it real or true or valid" (see Webster's, pp. 1555-1556). According to Deely, being known is a matter of degree, some things are *only* known and as such they are more objective than things that have actual existence and are also known. That which has existence separate from being known is subjective. Those aspects of individuals that are known only to themselves are also subjective. So, for example: Hamlet is only known and is therefore a more objective being than Hitler who also existed. Central to semiotics is the creation of the nonexistent through signs. This ability to use signs to signify that which does not exist makes language possible, makes Hamlet and unicorns possible. The difference, then, between an objective and a subjective entity is that the objective entity may not exist at all. In fact, the most objective entity is one that does not exist, just as the most subjective entity is one that exists but that no one has knowledge of.

Discussion

Using the term objective to mean to separate oneself from what one is observing or judging presupposes a realist, objectivist epistemology and begs the question why inquirers that believe in multiple constructed realities would concede this definition. Why should a discredited point of view define the terms of other points of view? While the term *objective* has been shown to have a wide range of epistemological meanings and while qualitative inquirers do not universally

8. See Roman & Apple (1990).

assume one definition of *objectivity* or of *subjectivity,* there does seem to be a common use of the terms within the vernacular that is consistent with a realist epistemology. Simply ignoring or considering irrelevant the common use of a term does nothing to change or broaden the use of that term. *Objectivity* as defined by a realist epistemology may not exist within a constructivist epistemology; but, part of making that alternative epistemology acceptable is gaining general acceptance of its terminology. As long as the common use of the terms is at odds with the concepts of an epistemological position, that position is at a disadvantage.

Alternative forms of inquiry need to co-opt terminology in a way that is consistent with its own epistemology. I suggest that this is not so difficult. The term *objective* can be taken back, as Freire (1970) has done, to mean related to the object (what is acted upon) or to mean, as Deely (1990) asserts was an antecedent usage, "that which is known." Both understand the power in the definition of terms. Deely's definitions are most interesting because they nearly transpose the common use of the two terms "objective" and "subjective." That which is known includes things that exist and things that do not exist, while what is subjective exists but is unknown. He argues that semiotics is essentially cenoscopic in nature so it is proper to assume that this fundamental recategorization depends upon group consensus. To be known, then, is to be shared.

This suggests terminology that does not include the connotation (the bias, if you will) that objective is good, subjective is bad. Both Deely's definition and Freire's definition are compatible with an epistemology that assumes multiple realities. Neither definition denies the viability of quantitative inquiry the way that the positivist usage of the terms denies the viability of qualitative inquiry. To paraphrase Deely (1990) the problem with logical positivism is in the sign systems or methods it denies, rather than in the method it espouses. Both Freire and Deely would agree that the positivist usage reinforces a power structure that denies the viability of perspectives other than its own.

Method

Deely (1990) goes to a lot of trouble to make a distinction between what he calls a point of view and what he calls a method. A method is a way of implementing a point of view or some aspect of a point of view.

> Semiotics, like logical positivism or behaviorism, is a point of view rather than a method. But, at the same time, unlike positivism or behaviorism, *semiotics* in its doctrinal foundation is not an ideological standpoint that can be disguised as a method of inquiry while in reality closing inquiry down. (p. 12)

Further, any viewpoint that can be implemented by a single method is suspect:

> But a point of view that can be fully implemented by a single method would be, on the whole, a very narrow viewpoint. The richer a point of view, the more diverse are the methods needed to exploit the possibilities for understanding latent within it. (p. 9)

Semiotics does not associate itself with a single method. Deely (1990) writes that semiotics has given rise to a variety of methods. He goes on to say that semiotics should not be associated with one method but should "establish its theoretical framework with sufficient richness and flexibility to accommodate itself to the full range of signifying phenomena" (1990, p. 9). In this section, I will describe some possibilities a semiotic perspective suggests:

First, Peirce (1986) postulates three forms of logic which are also three stages of inquiry: deduction, induction, and abduction.[9] All are derived from the syllogism known as Barbara.[10] Deduction and induc-

tion are not capable of generating new knowledge. It is left to the third of the syllogistic triad to perform this service. Abduction is, quite simply, educated guessing or hypothesis creation. Abductive reasoning moves from the result to the rule to the case. There is a great deal of room for error as can be seen in the following example:

> Result: John is mortal
> Rule: All men are mortal
> Case: John is a man

John, of course, could be one of a number of other mortal beings. Abduction works in the following way: A surprising fact is observed; one can postulate a condition under which, if true, the surprising fact would be a matter of course (CP5.189). There is, then, reason to suspect that the condition is true. Deduction is used to develop and clarify the hypothesis, induction to test it, but it is by abduction that hypotheses are generated. Of the three, abduction is most closely associated with forms of qualitative research (Shank, 1987).

Second, Maturana and Varela (1987) describe four conditions essential to proposing a scientific explanation:

1. Describing the phenomenon (or phenomena) to be explained in a way acceptable to a body of observers.
2. Proposing a conceptual system capable of generating the phenomenon to be explained in a way acceptable to a body of observers (explanatory hypothesis).
3. Obtaining from (b) other phenomena not explicitly considered in that proposition, as also describing its conditions for observation by a body of observers.
4. Observing these other phenomena obtained from (b). (p. 28)

This method involves observation, hypothesis generation, consensus building, and observation. Maturana and Varela make it clear that observations belong to the observer, not to the phenomenon being observed.

Third, Jacob von Uexküll's method is called Umwelt Research and is described in some depth by his son, Thure. Umwelt research is empirical, and relies upon observation and experimentation:

> The approach of Umwelt-research, which aims to reconstruct creative nature's "process of creating," can be described as "participatory observation," if the terms participation and observation are defined more clearly: Observation means first of all ascertaining which of those signs registered by the observer in his own experiential world are also received by the living being under observation. This requires a careful analysis of the sensory organs (receptors) of the organism in question. After this is accomplished, it is possible to observe how the organism proceeds to decode the signs it has received. Participation, therefore, signifies the reconstruction of the Umwelt (surrounding-world) of another organism, or—after having ascertained the signs which the organism can receive as well as the codes it uses to interpret them—the sharing of the decoding processes which occur during its behavioral activities. The objective of Umwelt research is to develop a theory of nature's composition, or to reconstruct the score to the "symphony of meanings" that nature composes out of the innumerable

9. Peirce used the terms hypothesis and retroduction before settling on abduction. See Peirce (1929) for a discussion of the concept of abduction.
10. Barbara: If a=b and b=c, then a=c. Barbara is a deduction; induction and abduction result from transformations in the form of deduction (rule, case, result). Induction = case, result, rule. Abduction = result, rule, case.

> surrounding-worlds (Umwelten) and plays, as it were, on a gigantic keyboard, of which our life and our surrounding-world is but one key. (T. von Uexküll, 1987, p. 149)

Sless (1986) says that semioticians have been blinded to "real" semiotic research, which is the creation of new languages and the change and development of existing languages. Deely (1990, p. 23) supports the potential for this type of research when he argues that "symbols do not just exist; they also grow." Eco (1979) also describes the dynamic nature of signs when he talks about the infinite regression of signs. Any interpretation can become the object of further study and interpretation.

If semiosis is the irreducible commonality, the stand-for relation, then reality is a construction and the object of inquiry is shifted from discovering what is real to revealing the multitude of ways of constructing reality. This suggests a place for consideration of action-oriented research of the type suggested by Freire (1979). This type of research normally has a particular outcome as a goal. The inquiry or research comes in the form of finding a viable route from where one is to where one wants to go. It certainly falls outside the realm of what realists might call *objective inquiry*, as do the other methods described in this section.

Ethical Considerations

The open nature of semiotics may leave one thinking that it is devoid of any ethical position. Indeed, semiotics provides a framework within which any method that reveals sign activity would be welcome. As Deely (1990) admits, "even bad methods truly reveal" (p. 12). However, if we consider that the sign is indifferent to the physical existence of that which it represents, then certain ethical considerations follow. The existence of the interpretant makes uncertainty a built-in characteristic of sign activity.

Maturana and Varela begin *The Tree of Knowledge* with an admonition against what they call the sin of certainty. Certainty has some important consequences. One is an ideological intolerance not unlike religious intolerance. Deely (1990) talks about the danger of points of view that parade as methods because their assumption of a privileged position has the effect of shutting inquiry down. These are ideological points of view that use method in such a way as to constrain inquiry to the limits of that ideology. Those holding positions outside these boundaries are heretical, unscientific, or irrelevant.

Another consequence is that the assumption of a privileged position has the effect of investing power in a select group of inquirers. Once an ideology is accepted as truth, those in power are there as a natural result of their superior understanding. They have not created knowledge, they reveal it to the rest of us. It is they who are in a position to decide whose positions fall within the desired boundaries and it is they who decide what those boundaries are at any given point in time and whose alterations of those boundaries are acceptable.

All that is required for these and other consequences to follow is the acceptance of the epistemological position that knower and known are separable. Once one has separated the knower from the known there is no need for the community of inquirers or their audience to accept responsibility for the state of the world. There is no need to accept that one's position of power may have come about as a result of the oppression of another or that one's position of subservience is any more than fate or the natural order of things. There is no need to believe that things could change even if change was desirable. This consequence is the avoidance of personal responsibility. Rorty (1979) describes it in the spirit of Sartre:

> If we could convert knowledge from something discursive, something

> attained by continual adjustments of ideas or words, into something as ineluctable as being shoved about, or being transfixed by a sight which leaves us speechless, then we should no longer have the responsibility for choice among competing ideas and words, theories and vocabularies. This attempt to slough off responsibility is what Sartre describes as the attempt to turn oneself into a thing—into an *être-en-soi*. (pp. 375-376)

The avoidance of personal responsibility plays into the investment of power. For those in positions of power, avoiding personal responsibility is a licence to shore up one's power at the expense of others without feeling guilty about it. Another's subordinate position is a result of their own inadequacy rather than the consequence of one's own greed. For the oppressed, who collude in their own oppression (Freire, 1970) through the fatalism referred to above, there is no possibility of change and therefore no reason to expend precious energy on an attempt to effect change. A semiotic point of view does not countenance certainty or its consequences. It is one thing for an individual to determine what is acceptable practice for oneself, quite another for an individual or group to make that decision for all inquirers. Within a semiotic point of view there is no avoiding personal responsibility for one's own reality.

Semiotics, however, does not speak to ethics where the metaphoric rubber meets the road. If even bad methods reveal, specific methods cannot be disqualified on ethical grounds that emanate from semiotics itself. The contribution that semiotics makes is in its potential for analyzing methods and making visible which sign processes are revealed and which are suppressed. Decisions about the ethical status of a given method are left to the standards of the community. Deely never disputes that individuals are ideological and that the methods they use will reflect their ideology. What is unacceptable from a semiotic standpoint is the assumption of a privileged position. No one ideology may be privileged over another. What semiotics does is make individual inquirers and their ideologies visible to their peers in such a way that appropriate criticism can be made within the community of investigators.

This in no way suggests that anything goes in terms of method. The community of inquirers and society as a whole must take responsibility for such constraints on inquiry. Semiotics provides a framework that is inclusive rather than exclusive in its thrust and thus provides an opposing tension to ideological constraints on method. Such tension would not preclude ideological constraints being applied to inquiry when there is general social consensus (as, for example, with the violation of human rights), but would make ideological constraints more difficult to justify. Semiotics can only be employed to reveal what a method conceals as well as what it illuminates (Deely, 1990); it does not specify constraints on method.

Conclusion

What does semiotics have to offer inquirers? More specifically what does it offer those of us interested in alternative approaches to inquiry?

Most importantly, it provides a warrant for the exploration of a variety of methods of inquiry. Methods may be as various as there are forms of understanding. The value of each method is determined by the entire community of inquirers and society at large rather than by the proponents of a single privileged position. Semiotics allows methods to seek their own niche within a structure that promotes the investigation and construction of multiple realities.

In addition, it offers a single, non-ideological framework that facilitates communication between proponents of different methods. In doing so it offers a less judgmental terminology that may be used

across methods. In the process it makes what a method discloses and conceals visible. For example, while abduction, a concept that is relevant in all the papers in this special issue, is implicit in all forms of inquiry, it is made explicit in semiotic inquiry. Any method that fully represents a point of view would be considered suspect.

To be consistent with the values of semiotics, inquirers would have to be explicit about the method of questioning and the effect that such questioning has on our model of nature. In other words, it would make the author of inquiry visible to the reader. If taken seriously, the profile of alternative forms of inquiry should be raised in relation to traditional forms.

Semiotics may very well be the all-inclusive paradigm that Deely (1990, p. 17) believes will "mediate a change of intellectual epoch and culture as profound and total as was the separating of medieval from ancient Greek times, or the separating of modern times from the medieval Latin era."

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