A General Introduction to the Semeiotic of Charles Sanders Peirce

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For my daughter, Alexandra Dylan Liszka

There is a blue in the glacier
That on sun swept days
Colors her eyes
And whose crystalline core
Reflects her person
Just as well as it refracts the light:
Insistent, changing the landscape,
She bends the world to her will.

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PREFACE

However we may want to conceive semeiotic, the goal here is to see it as Charles Sanders Peirce did. Of course this goal cannot be fully realized. Reconstructing the intentions and meanings of the author is not an innocent enterprise. When an author thinks, the products often acquire a life and a sense of their own and make suggestions and connections possibly not anticipated by the author; when the interpreter reads, there is constantly the backdrop of her own horizon. Peirce might be the first to admit thisafter all, "thought thinks in us rather than we in it" (CP 5.289n1). But still my idea is to present Peirce's vision of semeiotic as a discipline and to give, as far as possible, a coherent presentation of his theory of signs.

Let's be frank. Peirce's writing is terse and convoluted, without much wit or grace. "I am not naturally a writer," he says, "but as far from being so as any man."1 "One of the most extreme and lamentable of my incapacities is my incapacity for linguistic expression" (MS 632: 207209). At times his analyses are so complex and detailed that they seem to make the phenomenon disappear. His examples are obscure and exotic, and so they confuse rather than help. He has a tendency toward digression. As a result I don't quote Peirce as much as I should, although I reference the relevant passages profusely. Where Peirce's own examples are enlightening, I use them; otherwise I devise ones I believe convey the same illustration. Peirce also has an annoying habit of neologizing, which is compounded by the fact that he often gives several names for the same concept. I have tried to include all the alternate usages early on where possible, employing afterward only a single term to represent the idea involved. This makes the initial introduction of terms somewhat cumbersome, but I feel it's important to cross-reference all related terminology.

My goal here is to present Peirce's theory as favorably as possible; the book does not pretend to be a critique of Peirce's general theory. This is not to suggest that it is beyond reproachcertainly there are many flaws

and gaps in his accountrather, that the goal is simply to present it sympathetic and in the best light possible. With that accomplished, criticism can be d fairly. I do pay attention to criticisms and scholarly disputes on these matt however, I have indicated in the endnotes where scholarly controversies exist have kept the outcome or the best resolution of that controversy in the main te

I have written the text in the historical present. My choice in doing so is to cr a feeling as if Peirce is present and involved in the conversation of interpretation of his own material. I believe it represents the contempo influence which Peirce has on modern thinking about signs.

The references to Peirce's work are abbreviated as follows:

CP	The Collected Papers of Charles S. Peirce. 8 vols. Vols. 1-6, edited by Charles Hartshorne and Paul Weiss; vols. 7-8, edited by Arthur Burks. Cambridge: Harvard University Press, 1980.
W	The Writings of Charles S. Peirce. 5 vols. to date. Vol. 1, edited by Max Fisch et al.; vol. 2, edited by Edward C. Moore et al.; vols. 3-5, edited by Christian Kloesel et al. Bloomington: Indiana University Press, 1980-19
LW	Semiotic and Significs: The Correspondence between Charles S. Peirce a Victoria Lady Welby. Edited by Charles S. Hardwick. Bloomington: Indi University Press, 1977.
NEM	The New Elements of Mathematics. 4 vols. Edited by Carolyn Eisele. Th Hague: Mouton, 1976.
MS	Manuscript numbers correspond to Annotated Catalogue of the Papers of Charles S. Peirce. Richard S. Robin. Amherst: University of Massachuse Press, 1967.
L	References to the correspondence of Peirce.

The best bibliographic source on Peirce's writings on semeiotic and the relev manuscripts is Fisch, Ketner, and Kloesel (1979). General studies of Peir theory of signs, or at least those that involve a preponderance of material on topic, include Apel (1981), Bense (1967), Fisch (1978), Fisette (1990), Fitzge (1966), Greenlee (1973), Savan (1988), and Walther (1974). Full bibliograp details are given in the references section following the endnotes.

I have been a student of Peirce since 1971, when I first encountered him in

undergraduate philosophy class. I immediately recognized an extraordin mindbut also one of great complexity. This study is the result of a long strug with Peirce and an ongoing engagement with the community of Peirce schol in print and in person. I am especially

indebted to David Savan, whose steady and insightful scholarship will be missed and whose encouragement and criticism were so formative; Michael Shapiro, whose teaching and research were a source of regeneration and inspiration; and Nathan Houser, for the cordial discussions of Peirce and helpful guidance through the labyrinth of Peirce's writings. I am grateful to the Peirce Project at Indiana University-Purdue University at Indianapolis, whose facilities and services I have used over the years, in particular to Max Fisch, Christian Kloesel, and Nathan Houser. This book is based in part on a strongly critical reworking of previous studies (Liszka 1978, 1981, 1989, 1990, 1991, 1991a, 1993, 1993a, 1994). I want to thank those colleagues who, over the years, have commented on and criticized this material.

A General Introduction to the Semeiotic of Charles Sanders Peirce

1 The Discipline of Semeiotic

Semeiotic as a Formal Science

In one of the more straightforward definitions of semeiotic, Charles Sanders Peirce describes it simply as the formal doctrine of signs (CP 2.227). A *formal* discipline is one that aims at discerning the necessary conditions for the subject it studies (CP 2.227). Since form is "that by virtue of which anything is such as it is" (W 1: 307), formal disciplines are guided by the following question: in order for something to count as whatever it is, what sort of features would it have to have, and, given those features, what are the various ways in which it can be? Semeiotic, so understood, is defined as "the analytic study of the essential conditions to which all signs are subject" (MS 774: 6); its aim is to discern "what *must* be the characters of all signs ... " and "what *would be* true of signs in all cases ... " (CP 2.227). Formal sciences are, for this reason, distinct from what Peirce calls the "special" or empirical sciences which do not aim "to find out what *must be* ... [but] ... what *is* in the actual world" (CP 2.227). Physics, as an empirical science, may discover what is actually true about

motion, but semeiotic (or logic) (CP 2.227), as a formal science, would be concerned, in part, to determine the conditions for counting anything as true.

Peirce considers mathematics the purest and the most exemplary of the formal sciences, since it is "the science which draws necessary conclusions" (CP 4.229) per se, without regard to the factual state of what it studies (CP 4.232). For example, it shows what features are necessary in order for something to count, let's say, as an isosceles triangle, then goes on to show what can be inferred or developed from those featuresregardless of whether or not there are, in some sense of the term, isosceles triangles. Mathematics is the study of the form of its own constructions (CP 1.240); it analyzes the form of form. Peirce emphasizes that it is an investigation of hypotheticals (CP 4.232) rather than actualities. "Mathematical form," according to Peirce, "is such a representation of that state of things as represents only the samenesses and diversities involved in that state of things, without definitely qualifying the subjects of the samenesses and diversities" (CP 5.550).

All other formal sciences, including semeiotic (or logic), phenomenology, ethics, aesthetics, and metaphysics, are placed under the rubric of philosophy (CP 1.186, 1.190-192), and are considered derivative formal sciences because they do not study the form of their own constructions but study the form of things already constructed, so to speak. One might label them "reconstructive" formal sciences rather than "constructive" (CP 1.240) ones like mathematics. Phenomenology, for example, aims to show the essential qualities of phenomena abstracted from their particular manifestations, so that no matter how they appear, these features will be present. Semeiotic, similarly, would want to show that no matter how a sign is manifested, for example, as a sound, picture, thought, feeling, action, or naturally occurring event, still the formal conditions which make it a sign would be present.

Each of these disciplines within philosophy shares the same basic character of a formal science, although each is concerned with a different sort of phenomenon: phenomenology "ascertains and studies the kind of elements universally present in . . . phenomenon(CP.1.186).as such; phenomenology, as "occupied with the formal elements of the phenomenon" (CP 1.284), describes "all the features that are common to whatever is *experienced* or might conceivably be experienced . . . (CP 5.37). Normative science

(including semeiotic, ethics, and aesthetics) "investigates the universal and necessary laws of the relation of phenomena to Ends; that is, to Truth, Right and Beauty" (CP 5.121). More specifically, semeiotic or logic "is the science of the general necessary laws of signs"

(CP 2.39) and is specifically concerned with the relation of phenomena to truth. Metaphysics is concerned to show that "that which is necessarily *true* is part of existential fact, and not merely of thought" (CP 1.489); it sets the necessary conditions for which something which is *logically* possible can be counted as real (cf. CP 1.483).

In Place of Semeiotic in the System of Sciences

In his later years, Peirce was interested in developing a systematic classification of the sciences (see figure 1).1 His system reflects a very broad, classical sense of "science," not restricted to the modern empirical sciences alone but understood as any attempt to systematize knowledge (CP 1.234). Thus he could include under the label of "science" not only laboratory sciences such as chemistry but also human sciences such as ethnology, as well as disciplines such as history and literary and art criticism (CP 1.201). His schema suggests two main *branches* of science so understood, theoretical and practical (CP 1.239). These are further subdivided into the sciences of discovery, review, and the practical sciences (CP 1.181). The division in terms of branches corresponds to the *purpose* of the science (CP 1.238), so that theoretical sciences aim at the discovery of knowledge, whereas the goal of the sciences of review is the organization of the sciences and the practical ones have as their goal the application of knowledge. The practical sciences are understood by Peirce simply as what we would call applied sciences, such as medicine, engineering, surveying, and navigation (CP 1.243). The sense of "practical" here is clearly more current than the traditional, Aristotelian sense, which included studies such as ethics, politics, rhetoric, and poetics under that rubric. Instead, Peirce treats some of these disciplines as theoretical sciences, for reasons that will become clearer as we proceed. The science of review is a rather odd category. Peirce claims that it is both a theoretical and a practical science (CP 1.202), and not much else is said about it. It is "the business of those who occupy themselves with arranging the results of discovery, beginning with digests, and going on to endeavor to form a philosophy of science.... The classification of the sciences belongs to this department" (CP 1.182).

The theoretical sciences are the focus of his work in this regard. Peirce considers a number of sensible frameworks to subdivide the sciences of discoveryfor example, in terms of the sort of problem they address (CP

1.227), the kinds of questions they are concerned with (CP 1.184), the technique of reasoning employed (CP 2.644)but he divides them further

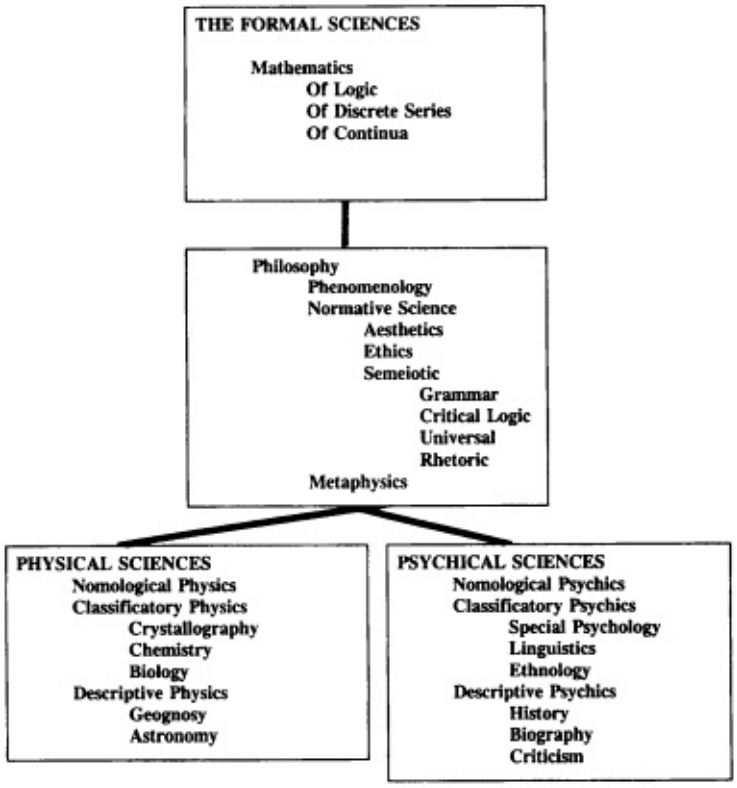

Figure 1. Peirce's classification of the theoretical sciences.

into *classes* based primarily on the mode of observation they use (CP 1.239). This strategy is chosen because Peirce believes that "all knowledge whatever comes from observation... ," and he agreed with geologist Louis Agassiz that "observation is the 'ways and means' of attaining purpose in science" (CP 1.238). The result is a division of the sciences of discovery into three classes: mathematics, philosophy, and the empirical sciences, according to three different modes of observation.

Mathematics, as we've seen, involves drawing deductive inferences from the observation of its own constructions: " ... it makes constructions in the imagination according to abstract precepts, and then observes these imaginary objects, finding in them relations of parts not specified in the precept of construction" (CP 1.240). Probably the paradigm which Peirce

has in mind here is the geometer who is able to experiment with geometrical diagrams, observe new connections, and make inferences through abstraction and generalization based on those observations (cf. CP 4.233 ff.). He doesn't give a name to this peculiar form of observation, but keeping in line with the other sorts of observational techniques he did name, we might call it *iconoscopic.*[2] As mentioned, mathematics deals with what is logically possible but hypothetically abstract, that is, it seeks only necessary connection between items whose status is merely hypothetical rather than actual.

Mathematics is divided again in terms of *orders.* This sort of division has to do with the particular kind of business or questions the science addresses. Peirce divides mathematics neatly into three concerns: the mathematics of logic (or reasoning), the mathematics of discrete series, and the mathematics of continua.

Philosophy, on the other hand, is concerned to discover not what is hypothetically necessary but actually necessary in regard to the sorts of phenomena it studies, but "it limits itself to so much of truth as can be inferred from common experience" (CP 1.184). For this reason it employs a peculiar kind of observation which Peirce calls *coenoscopic.* This is a kind of observation, typical of the great philosophers, which simply takes the collectivity of common experience and, by processes similar to mathematics, such as abstraction and generalization, is able to draw out its essential qualities, relative to the topic of the observation.

Philosophy also has its *orders,* based on a traditional understanding of its concerns (CP 1.186, 1.280-1.282): philosophy is the formal science of what appears (what Peirce calls *phenomenology);* it is the study of what ought to be (what Peirce calls the *normative sciences);* and it is the formal science of what is, or what is real (Peirce uses the traditional term "metaphysics"). The normative sciences, in turn, have three suborders, corresponding to the classical value trichotomy of truth, goodness, and beauty: logic or semeiotic, ethics, and aesthetics (CP 1.191).

Semeiotic, then, is a suborder of philosophy. It is primarily concerned with the question of truth, which makes it a normative science. That means it is not

concerned so much with *what* is true (which is the job of the empirical sciences) but in establishing the conditions for what is to count as true. It is at once an evaluative or normative science (since it establishes criteria for something) and formal, because it attempts to discern the necessary conditions for that norm, a science which aims to establish evaluative norms on the basis of categorical accounts (cf. CP 5.39). In turn, since all thought and knowledge can only take place in signs (CP 1.191, 5.250), then the question of truth really focuses on the formal conditions

of signs, their character, their employment, and their transmission and development.

The third *class* of sciences, according to Peirce, comprises what are currently called the empirical sciences, those mostly concerned with what is factually true of the subjects they study, the accumulation of new facts in regard to their particular problems (CP 1.184). This class employs a special kind of observation which Peirce calls *idioscopic (CP* 1.184, 1.242), and so he often calls these sciences by that name. It is the sort of observation that is familiar to any scientist; it requires travel, exploration, or some assistance to the senses, either instrumental or given by training (CP 1.242).

The empirical sciences have two subclasses, the physical and psychical disciplines (CP 1.187, 1.252), a distinction that roughly corresponds to the distinction between the natural and the human sciences.[3] Each subclass is divided in turn by means of the following *orders:* nomological, which is the study of general laws; classificatory, which is the study of general kinds of phenomena, their formation and growth; and descriptive, which endeavors to explain particular, even individual, kinds of phenomena (CP 1.188, 1.189). Among the natural sciences, physics is a good example of a nomological type, since it seeks to discover the ubiquitous phenomena of the physical universe, formulate their laws, and measure their constants (CP 1.188). Chemistry and biology are good examples of classificatory natural sciences, since they attempt to describe and classify certain kinds of physical forms and explain them by laws discovered in physics. Astronomy and geology are descriptive natural sciences, since they aim to study a particular category within the kind which classificatory science studies and, in doing so, applies both the principles of nomological and classificatory sciences to its effort.

This parallels the design among the human sciences (CP 1.257). General psychology is a nomological science, since it seeks to underscore the general laws of the mind (CP 1.199). Linguistics and ethnology are examples of classificatory sciences, since they study kinds of psychological phenomena and are dependent upon the laws of general psychology, according to the understanding of Peirce (cf. CP 1.255). History is an illustration of the last sort of order and so is a descriptive science. The additional subdivisions of history are rather curious (CP 1.201). There is (1) history proper, which

includes ancient and modern history, political history, history of the sciences, history of social developments, law, religion, etc.; (2) biography, which, as Peirce suggested, is "at present rather a mass of lies than a science"; and (3) criticism, which he saw as the study of individual works of mind, and included both literary and art criticism.

The Role of Semeiotic in the System of Sciences

" ... It has never been in my power to study anythingmathematics, metaphysics, gravitation, thermodynamics, optics, chemistry, comparative anatomy, gravitation, astronomy, psychology, phonetics, economics, the history of science, whist, men and women, wine, metrologyexcept as a study of semeiotic" (LW 85-86). Clearly, then, semeiotic plays a significant role in the system of sciences. What role it plays depends on its position in that system, a system which has a particular hierarchy in mind. As such, two questions must be addressed before we can determine that specific role: *what* is the relation of dependency among the sciences, and *how* are they dependent within that relation?

The relation of dependency among the sciences is defined by the following leading principle, which Peirce borrows from Comte:

> . . . the sciences may be arranged in a series with reference to the abstractness of their objects; and that each science draws regulating principles from those superior to it in abstractness, while drawing data for its inductions from the sciences inferior to it in abstractness. So far as the sciences can be arranged in such a scale, these relationships must hold good. (CP 3.427)[4]

The classification of the sciences is based on three principal divisions: branches, classes, and orders. Consequently, the order within and among each of these divisions should follow this leading principle. Among the branches, the sciences of discovery are superordinate to the other twoand for clear reasonssince they are dependent on the results of the sciences of discovery. Engineering requires the theoretical results of mathematics and physics, just as medicine relies on chemistry, physiology, and biology. Certainly this is clearer in the case of the so-called sciences of review; they are "retrospective" (CP 1.256) and so require an active science to organize.

Among the three classes, mathematics is superordinate, since it "is the most abstract of all the sciences" (CP 3.428). It "meddles with every other science without exception." "There is no science whatever to which is not attached an application of mathematics" (CP 1.245). "Mathematics is the only science which can be said to stand in no need of philosophy... " (CP 1.249).