Hegel in a Strange Costume:

Reconsidering Normative Science for Conceptual Structures Research

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Abstract. Charles Peirce was influenced by German philosophy to conceive logic as one of a carefully related set of theoretical disciplines called the *Normative Sciences*, strategically located in his Classification of the Sciences between *Phenomenology* and *Metaphysics*. Barely enough evidence is available from his archived manuscripts to indicate how he might have developed that part of his philosophy in the three disciplines of esthetics, ethics, and logic-as-semiotic (I will use his preferred spelling, "semeotic"), which he says support his purpose for pragmatism in a theory of inquiry. I have investigated that evidence to find how his philosophy treats some neglected issues in modern philosophy (nominalism, intuition, automation) which limit the advancement of conceptual structures research, and suggest that his normative science will be required for effective knowledge creation and communication.

1 Overview of the Evidence

Early in his study of logic, Charles Peirce (1839-1914) was strongly influenced by German philosophy, especially the work of Kant (1724-1804) and Hegel (1770-1831). As he became involved in developing the logic of relatives to increase the power of logical analysis, he realized how the regime of traditional logic had fundamentally limited philosophical inquiry, and therefore all scientific inquiry. The effects of those limitations linger to this day, and continue to block advancements in theory and method, especially with regard to the phenomena of creating and communicating knowledge. I will examine those limitations to a theory of inquiry, considering them as the issues of *nominalism*, *intuition*, and *automation*, indicating how Peirce's pragmatism was conceived to address them methodologically, and then suggest what evidence we have to conclude that he eventually decided to develop the normative sciences—esthetics, ethics (or practics), and logic—to account for that methodology as required by his general theory of signs, or semeotic (I use the spelling he preferred [see *CP* 8.377]).

His writings (at least those few to which we have convenient access) do not provide much evidence for what he took to be the relationship between his pragmatism and his view of normative science. In fact, these two aspects of his work are rarely mentioned in the same context (and almost never explicitly), which may be simply because he realized the significance of the normative sciences very late in his life, perhaps in the last decade (1902-1912). One particularly significant remark appears in a letter to William James, late in 1902: "These three normative sciences correspond to my three categories, which in their psychological aspect, appear as Feeling, Reaction, Thought. I have advanced my understanding of these categories much since Cambridge days; and can now put them in a much clearer light and more convincingly. The true nature of pragmatism cannot be understood without them. It does not, as I seem to have thought at first, take Reaction as the be-all, but it takes the end-all as the be-all, and the End is something

that gives its sanction to action. It is of the third category. Only one must not take a nominalistic view of Thought as if it were something that a man had in his consciousness. Consciousness may mean any one of the three categories. But if it is to mean Thought it is more without us than within. It is we that are in it, rather than it in any of us" [*CP* 8.256].

Most of the evidence available is from his Lectures on Pragmatism of 1903. In fact, the first of these lectures is entitled "Pragmatism: The Normative Sciences." And between the fourth lecture, "The Reality of Thirdness," and the sixth lecture, "Three Types of Reasoning," the fifth is "Three Kinds of Goodness," which he begins: "Now I am going to make a series of assertions which will sound wild; for I cannot stop to argue them, although I cannot omit them if I am to set the supports of pragmatism in their true light" [*CP* 5.120]. In the final of these lectures, he concludes: "If you carefully consider the question of pragmatism you will see that it is nothing else than the question of the logic of abduction. That is, pragmatism proposes a certain maxim which, if sound, must render needless any further rule as to the admissibility of hypotheses to rank as hypotheses, that is to say, as explanations of phenomena held as hopeful suggestions; and, furthermore, this is all that the maxim of pragmatism really pretends to do, at least so far as it is confined to logic, and is not understood as a proposition in psychology. For the maxim of pragmatism is that a conception can have no logical effect or import differing from that of a second conception except so far as, taken in connection with other conceptions and intentions, it *might conceivably* modify our practical conduct differently from that second conception" [*CP* 5.196; my emphasis].

We have even less evidence available to discern how he intended semeotic to relate to pragmatism and to normative science. From his voluminous manuscript, "Minute Logic" (1902-03), only one remark on the subject appears in print, in the *Collected Papers of Charles Sanders Peirce* [*CP*]: "With Speculative Rhetoric, Logic, in the sense of Normative Semeotic, is brought to a close" [*CP* 2.111]. We may conclude from that indication and only half a dozen others that, by this point, "Semeotic" was for him "logic," and should appear in his classification among the other normative sciences. I found it helpful to study his "Classification of the Sciences," once it had been constructed in outline from his textual accounts (see below, in abbreviated form; see [1] and [2] for more detail). That construction is only a first step in solving the puzzle of his many writings, archived in manuscript, concerning which Peirce himself remarks: "All that you can find in print of my work on logic are simply scattered outcroppings here and there of a rich vein which remains unpublished. Most of it I suppose has been written down; but no human being could ever put together the fragments. I could not myself do so.—1903" [printed at the beginning of Volume 2 of the CP, *Elements of Logic*.]

The Structure of Philosophy in a Classification of the Sciences of Discovery represents philosophy as a positive science, in the sense of discovering what really is true but limited to "so much of truth as can be inferred from common experience." The special sciences are principally occupied with the accumulation of new facts inferred from specific human and natural inquiries [see *CP*: 1.183-238]. The structure indicates that each science draws upon the principles of the studies above it on the list, mathematics being the simplest and most abstract science.

I. Mathematics (the Conditional or Hypothetical Science, studies what is and what is not logically possible, without making itself responsible for any actual existence [see *CP*, 5.40])
II. Philosophy (the Theoretical Science in Three Branches: Phenomenology ascertains and studies the kinds of elements universally present at any time to the mind in any way; Normative science distinguishes what ought to be from what ought not to be; Metaphysics seeks to give an account of the universe of mind and matter. [see *CP*: 1.186])

A. Phenomenology (the science of experience in terms of Category Theory: Firstness, Secondness, Thirdness; "describing all the features that are common to whatever is

experienced or might conceivably be experienced or become an object of study in any way direct or indirect"[*CP*: 4.390, 2.84, 5.37])

B. The Normative Sciences ("the science of the laws of conformity of things [as phenomena] to ends or ideals, that is, perhaps, to Truth, Right, and Beauty" [*CP* 5.121])

1. Esthetics (the science of ideals; considers those things whose ends are to embody qualities of feeling)

2. Ethics (the theory of self-controlled or deliberate conduct; considers those things whose ends lie in action; should perhaps be called "Practics")

3. Logic (Formal Semeotic, or the science of self-controlled or deliberate thought; considers those things whose end is to represent something)

a. Philosophical Grammar (Speculative Grammar, or the theory of meaning)

b. Critical Logic (the theory of inference)

c. Philosophical Rhetoric (Speculative Rhetoric, i.e., theory of method, especially pragmatism)

C. Metaphysics (the science of Reality. Reality consists in regularity.[see *CP*: 5.121-129; see also V 6, B 1])

1. Ontology (general metaphysics)
2. Psychical metaphysics (religion)
3. Physical Metaphysics or Cosmology (natural laws)

III. The Special Sciences: these are now represented by the various disciplines in a college of arts and sciences, apart from philosophy and mathematics. Peirce divides these into what we now think of as the humanities along with other human studies and the natural sciences, which would correspond roughly to the *Geisteswissenschaften* and the *Naturwissenschaften*) [3].

The "Introduction" to Peirce's "Bibliography" in volume 8 of the *CP* includes a brief list (see below) to account for those of Peirce's manuscripts that arrived at the Harvard University archive. The introduction says that his manuscript collection "is divided according to Peirce's classification of the sciences as follows, with the number of boxes and bundles listed after each division." Judging from the number of boxes and bundles listed for each domain of his work, we should expect to find most of his work devoted to normative science. An editor's note in the *CP* (Volume 2) explains: "Peirce came to recognize the nature of the Normative Sciences at a very late date (c.1903). He apparently wrote practically nothing on esthetics (see 2.197) and linked most of his discussions of practics and ethics with those on pragmatism and logic. Logic, the third of the Normative Sciences, being the subject on which Peirce spent about sixty years of intensive study and on which he left the most manuscripts." But his later writings (during his last decade) are not yet at all well represented in any print edition, because they become more difficult to decipher as his handwriting deteriorated with age. Because his manuscripts are now in very delicate condition, on high acid paper, we may never know whether he had the opportunity to pursue further development of his normative sciences.

Listing of Peirce's Manuscript Collection at Harvard University

I. Science of Discovery	
A. Mathematics	8
B. Philosophy	
1. Pragmatism and the Categories	2
2. Normative Sciences (Logic)	12
3. Metaphysics	2
C. Idioscopy	8
II. Science of Review: Classification of the Sciences	1

III. Practical Science and Miscellaneous	3
IV. Book Reviews	2
V. Life and Letters	
Unclassified: V{a}, V{b},…, V{z}	6
A. Biography	2
B. Correspondence	
1. Personal	6
2. Professional	5
3. Business	2
4. Official: Coast Survey	1
5. Applications	1

Based on the limited evidence available in the *CP*, I conjecture that Peirce's conception of the normative sciences, which gives us a new view of logic and its role in inquiry, might serve conceptual structures work in effectively building theory and constructing methods of research. I will present evidence from his writings for that conjecture, in considering how he contends with those issues that limit adequate account of knowledge creation and communication in pursuing a theory of inquiry on Hegel's triadic model. As Peirce remarks, in unidentified fragments of a manuscript (dated 1892), "My philosophy resuscitates Hegel, though in a strange costume" [*CP* 1.42].

By the time he writes the third draft of his second lecture for the 1903 series on pragmatism, "The Universal Categories," he has explicitly distinguished his view from those of other modern philosophers: "Philosophy, as I understand the word, is a positive theoretical science, and a science in an early stage of development.… The followers of Haeckel are completely in accord with the followers of Hegel in holding that what they call philosophy is a practical science and the best of guides in the formation of what they take to be Religious Beliefs. I simply note the divergence, and pass on to an unquestionable fact; namely, the fact that all modern philosophy is built upon Ockhamism; by which I mean that it is all nominalistic and that it adopts nominalism because of Ockham's razor. And there is no form of modern philosophy of which this is more essentially true than the philosophy of Hegel. But it is not modern philosophers only who are nominalists. The nominalistic Weltanschauung has become incorporated into what I will venture to call the very flesh and blood of the average modern mind" [*CP* 5.61].

2 Modern Philosophy's Costume: Nominalism, Intuition, and Automation

Peirce's aim of a scientific philosophy required him to examine and explicate in intricate detail the assumptions of modern philosophy *as phenomenal objects* of inquiry themselves. His "Minute Logic" attempts to discover exactly how each attempt has failed in the inquiry of its proper phenomena, and to respond to those deficiencies effectively in his own philosophy. Anyone who studies his work in depth will find much evidence of the affinities he locates in nearly every modern system, which his analysis approves as part of his "strange costume." He emphasizes many times that nothing in his philosophy is original, that only its placement among other ideas in a comprehensive perspective gives it a new role in his design. Those who have considered his work in piecemeal (which is how it appears in the *Collected Papers,* and in any other available source—since the chronological edition of his work [4] is still far from complete) often conclude that pragmatism is a new system of philosophy, or simply a new form of some particular old one. Instead, we can better appreciate it as a maxim for a method by which he constructs an ensemble from worthy features of other systems.

According to Peirce, modern philosophy has suffered a "tidal wave of nominalism," beginning with Descartes. Kant was a nominalist, whose philosophy "would have been rendered

compacter, more consistent, and stronger if its author had taken up realism," he says, and Hegel was a nominalist "of realistic yearnings" [*CP*1.19]. In a review of a book on the works of Berkeley, in 1871, Peirce comments on how the issue of nominalism affects us: "But though the question of realism and nominalism has its roots in the technicalities of logic, its branches reach about our life. The question whether the genus homo has any existence except as individuals, is the question whether there is anything of any more dignity, worth, and importance than individual happiness, individual aspirations, and individual life. Whether men really have anything in common, so that the community is to be considered as an end in itself, and if so, what the relative value of the two factors is, is the most fundamental practical question in regard to every public institution the constitution of which we have it in our power to influence" [*CP* 8.38].

Peirce considers nominalism to be a naive sort of metaphysics ("the simplest possible of all Logico-Metaphysical theories, if it can be sustained" [*CP* 2.166]), which our modern minds seem predisposed to assume. He persistently argued against it, and was convinced that only with adequate logical theory and method could anyone hope to examine this mode of thinking effectively enough to change the habit of blindly accepting it. We can find evidence that he identified common ground between nominalism and realism in terms of how both conceive *reality*, such as in an untitled manuscript of 1873: "I do not think that the two views [realism and nominalism] are absolutely irreconcilable, although they are taken from very widely separated stand-points. The realistic view emphasizes particularly the permanence and fixity of reality; the nominalistic view emphasizes its externality. But the realists need not, and should not, deny that the reality exists externally to the mind; nor have they historically done so, as a general thing. That is external to the mind, which is what it is, whatever our thoughts may be on any subject; just as that is real which is what it is, whatever our thoughts may be concerning that particular thing" [*CP* 7.339].

Also significant is that his argument for pragmatism, based on the theory that every thought is a sign, was the doctrine of Leibniz, Berkeley, and all the other extreme nominalists beginning in the sixteenth century. Just as they did, he insists, "Every realist must, as such, admit that a general is a term and therefore a sign," but warns, "If, in addition, he holds that it is an absolute exemplar, this Platonism passes quite beyond the question of nominalism and realism; and indeed the doctrine of Platonic ideas has been held by the extremest nominalists" [*CP* 5.470]. Ockham, the leading extreme nominalist, proclaimed: "It is to be maintained, therefore, that every universal is one singular thing, and therefore there is no universal except by signification, that is, by its being the sign of many." Peirce responds: "Ockham always thinks of a mental conception as a logical term, which, instead of existing on paper, or in the voice, is in the mind, but is of the same general nature, namely, a sign. The conception and the word differ in two respects: first, a word is arbitrarily imposed, while a conception is a natural sign; second, a word signifies whatever it signifies only indirectly, through the conception which signifies the same thing directly" [*CP* 8.20 (1871)].

At the end of a manuscript for a proposed book on the history of science, in 1896, Peirce contends that all modern nominalist philosophers recognize only one mode of being, the being of an individual thing or fact, which he says, "consists in the object's crowding out a place for itself in the universe, so to speak, and reacting by brute force of fact, against all other things. I call that existence" [*CP* 1.21]. To this he responds: "My view is that there are three modes of being. I hold that we can directly observe them in elements of whatever is at any time before the mind in any way. They are the being of positive qualitative possibility, the being of actual fact, and the being of law that will govern facts in the future" [*CP* 1.23]. These are the three Universal Categories of his phenomenology: Firstness, Secondness, and Thirdness, which he uses to explain the nominalist's problem:

> Now for Thirdness. Five minutes of our waking life will hardly pass without our making some kind of prediction; and in the majority of cases these predictions are fulfilled in the event. Yet a

> prediction is essentially of a general nature, and cannot ever be completely fulfilled. To say that a prediction has a decided tendency to be fulfilled, is to say that the future events are in a measure really governed by a law … "Oh," but say the nominalists, "this general rule is nothing but a mere word or couple of words!" I reply, "Nobody ever dreamed of denying that what is general is of the nature of a general sign; but the question is whether future events will conform to it or not. If they will, your adjective 'mere' seems to be ill-placed." A rule to which future events have a tendency to conform is *ipso facto* an important thing, an important element in the happening of those events. This mode of being which consists, mind my word if you please, the mode of being which consists in the fact that future facts of Secondness will take on a determinate general character, I call a Thirdness. [*CP*1.26]

In his second lecture of a series in 1898, "Detached Ideas on Vitally Important Topics," Peirce sketches a useful summary of the two opposing views: "Roughly speaking, the nominalists conceived the general element of cognition to be merely a convenience for understanding this and that fact and to amount to nothing except for cognition, while the realists, still more roughly speaking, looked upon the general, not only as the end and aim of knowledge, but also as the most important element of being.… But as for the average nominalist whom you meet in the streets, he reminds me of the blind spot on the retina, so wonderfully does he unconsciously smooth over his field of vision and omit facts that stare him in the face, while seeing all round them without perceiving any gap in his view of the world" [*CP* 4.1].

The crucial question between the two views, as Peirce puts it, is "whether all properties, laws of nature, and predicates of more than an actually existent subject are, without exception, mere figments or not." He offers an example in a footnote: "Anybody may happen to opine that 'the' is a real English word; but that will not constitute him a realist. But if he thinks that, whether the word 'hard' itself be real or not, the property, the character, the predicate, hardness, is not invented by men, as the word is, but is really and truly in the hard things and is one in them all, as a description of habit, disposition, or behavior, then he is a realist" [*CP* 1.27; fn] To make the distinction, as Kant did and all nominalists do, between the true conception of something and the thing itself, insists Peirce, "is only to regard one and the same thing from two different points of view"; a true conception would be the reality, which is what gives us reason to pursue any inquiry with the hope that it has real direction, in which "the mind of man is, on the whole and in the long run, tending" [*CP* 8.12].

Two significant remarks indicate how firm was his judgment of nominalism. In his Lowell Lectures of 1903, he reveals that since his 1871 review of the book on Berkeley's works he has "very carefully and thoroughly revised" his philosophical opinions, and has "modified them more or less on most topics," but has "never been able to think differently on that question of nominalism and realism" [*CP* 1.20]. And in an untitled manuscript that was apparently intended as part of a lecture, "Fallibilism, Continuity, and Evolution" (c. 1897), he says: "It is one of the peculiarities of nominalism that it is continually supposing things to be absolutely inexplicable. That blocks the road of inquiry" [*CP* 1.170].

Peirce demonstrates how detailed analysis of the confused state of modern philosophy can "unblock that road," when he considers the issue of *intuition*, in two essays published in the Journal of Speculative Philosophy (1868). The first essay, "Questions Concerning Certain Faculties Claimed for Man," takes on the fundamental nominalist claims and, in particular, Kant's legacy of *intuition as a form of uninferred or immediate knowledge* (such as our knowledge of space and time). He begins by formally stating that definition: "Throughout this paper, the term intuition will be taken as signifying a cognition not determined by a previous cognition of the same object, and therefore so determined by something out of the consciousness." He questions whether we have this faculty by asking how we could know we do if we did? The essay ends with its denial: "We have no power of Intuition (as defined), but every cognition is determined" [*CP* 5.213-63].

In his second essay (in the same journal, 1868), he says that this proposition cannot be regarded as certain and must be traced out to its consequences. [see *CP* 5.265]. Here he makes the case that we could not know for sure that anything is unknowable, or inexplicable, for we could not conceive of it as apart from what we think. We are only aware of or can identify feelings (what we call intuitions, for example) by *predicating* them (or relating them to something, as when we say a computer interface is intuitive). Therefore, only whatever is *incomparable* with anything else is inexplicable, he stresses, and whatever is incomparable would be unthinkable and we could have no concept of it *as* unknowable. From this result, he makes a logical case for meaning as the continuity of mind, or as having a sort of being that is *relational*:

> So that nothing which we can truly predicate of feelings is left inexplicable … no present actual thought (which is a mere feeling) has any meaning, any intellectual value; for this lies not in what is actually thought, but in what this thought may be connected with in representation by subsequent thoughts; so that the meaning of a thought is altogether something virtual. It may be objected, that if no thought has any meaning, all thought is without meaning. But this is a fallacy similar to saying that, if in no one of the successive spaces which a body fills there is room for motion, there is no room for motion throughout the whole. At no one instant in my state of mind is there cognition or representation, but in the relation of my states of mind at different instants there is. [In a footnote, Peirce says: "Accordingly, just as we say that a body is in motion, and not that motion is in a body, we ought to say that we are in thought and not that thoughts are in us."] [*CP* 5.289]

Of course, much of what goes on in the flow of thought we are not explicitly aware of as inference; in fact, we could say that most of our opinions come to us almost *automatically*, unconsciously derived from previous thought. But if we can consider beliefs to be *habits of mind*, as Peirce contends, then the difference between instinctive habits and beliefs is the capability of self-control: “a deliberate, or self-controlled habit, is precisely a belief” [*CP* 5.480]. Furthermore, he says, “The feeling of believing is a more or less sure indication of there being established in our nature some habit which will determine our actions. Doubt never has such an effect” [*CP* 5.371]; doubt disturbs our belief-habits to which "we cling tenaciously, not merely to believing, but to believing just what we do believe” [*CP* 5.372]. He concludes, “all doubt is a state of hesitancy about an imagined state of things.—1893” [*CP* 5.373fn], but stresses: “genuine doubt always has an external origin, usually from surprise” [*CP* 5.443]. Indubitable beliefs, says Peirce, indicate “a somewhat primitive mode of life.” With the introduction of any degrees of self-control, “occasions of action arise in relation to which the original beliefs, if stretched to cover them, have no sufficient authority. In other words, we outgrow the applicability of instinct—not altogether, by any manner of means, but in our highest activities” [*CP* 5.511].

The capability to regulate our lives by belief-habits that respond to doubt is a form of virtual adaptation and so of evolution that is not available to less capable minds. Belief in imagined states of things: which we hypothetically maintain, experiment with by prediction, and then regulate our actions according to the results we experience (in pursuing inquiry), is what distinguishes our conduct from automatic regulation [see *CP* 5.473]. Peirce reminds us how subtle—and crucial—this distinction is: "There is no evidence that we have this faculty, except that we seem to feel that we have it. But the weight of that testimony depends entirely on our being supposed to have the power of distinguishing in this feeling whether the feeling be the result of education, old associations, etc., or whether it is an intuitive cognition; or, in other words, it depends on presupposing the very matter testified to" [*CP* 2.214 (1868)]. He eventually rescues intuition from its nominalist fate with a new definition: "Intuition is the regarding of the abstract in a concrete form, by the realistic hypostatization of relations [or hypothetically regarding thoughts and things]; that is the one sole method of valuable thought. Very shallow is the prevalent notion that this is something to be avoided. You might as well say at once that

reasoning is to be avoided because it has led to so much error; quite in the same philistine line of thought would that be; and so well in accord with the spirit of nominalism that I wonder some one does not put it forward. The true precept is not to abstain from hypostatization, but to do it intelligently" [*CP* 5.383 (1877)]. And finally he advises: "Everybody ought to be a nominalist at first, and to continue in that opinion until he is driven out of it by the *force majeure* of irreconcilable facts. Still he ought to be all the time on the lookout for these facts, considering how many other powerful minds have found themselves compelled to come over to realism" [CP 4.1 (1898)].

In his unpublished "Grand Logic" of 1893, he admonishes: "Many men are so cocksure that necessity governs everything that they deny that there is anything substantially contingent. But it will be shown in the course of this treatise that they are unwarrantably confident, that wanting omniscience we ought to presume there may be things substantially contingent, and further that there is overwhelming evidence that such things are. … The question of realism and nominalism, which means the question how far real facts are analogous to logical relations, and why, is a very serious one, which has to be carefully and deliberately studied, and not decided offhand, and not decided on the ground that one or another answer to it is 'inconceivable'" [*CP* 4.67-8]. This question challenges conceptual structures research to take account of the human capability of virtual adaptation by self-critical control, theoretically and methodologically, if knowledge representation tools are truly to augment human inquiry. Peirce's scientific philosophy offers logical principles that are hypotheses in normative theory, which bases it on abduction, like any other scientific theory [see 5].

3 Peirce's Strange Costume: Semeotic, Pragmatism, and Normative Science

In the forms which we have access to examine it, Peirce's "costume" appears even stranger than he could imagine. Scholarship based on his writings has been so demanding (especially before the production of the electronic *CP* [6]) that most Peirce scholars have been entirely unaware of how he relates semeotic to pragmatism and places them within his normative sciences. The relationships among these three realms are never explicated in the evidence compiled from his manuscripts in the *CP,* which is not surprising when we remember that especially his later work—and particularly that on semeotic—is not well represented there. Only seven occurrences of the term (in its various spellings) appear in the *CP*'s eight volumes of Peirce's texts, and one footnote reference, in the title of an unpublished work: "Logic viewed as Semeiotics," c.1904 (the only case where that spelling occurs, and that manuscript is not included in the *CP*). Otherwise the term occurs, by date, in these forms: 1893 (semiotic), 1896 (semeiotic), 1897 (semiotic), 1898 (semeiotic), 1902 (semeotic), 1908 (semeotic), and again in 1908 (semeiotic). His references to normative science are only twice as frequent; in only fifteen *CP* entries does the term specifically occur (and only between 1901 and 1908). Most of the entries where it appears were written in 1903, but (perhaps) curiously no entries of that year contain "semeotic" (in any spelling). In fact, most of his works on semeotic in the *CP* are dated before 1900. Even the *CP*'s bibliography contains only the one item title mentioned above, "Logic viewed as Semeiotics." Joseph Esposito explains that Peirce's study of signs and development of a theory "grew out of his use of sign concepts to solve *specific* philosophic questions," many years prior to his realization of the need to develop that theory further, as semeotic [7: 19].

Nevertheless, we know from the entries where the term appears that he clearly considered it to apply to an expanded form of logic. The fragmentary manuscript of 1896 begins to make the core connections: "The term 'logic' is unscientifically by me employed in two distinct senses. In its narrower sense, it is the science of the necessary conditions of the attainment of truth. In its broader sense, it is the science of the necessary laws of thought, or, still better (thought always

taking place by means of signs), it is general semeiotic, treating not merely of truth, but also of the general conditions of signs being signs (which Duns Scotus called *grammatica speculativa*), also of the laws of the evolution of thought, which since it coincides with the study of the necessary conditions of the transmission of meaning by signs from mind to mind, and from one state of mind to another, ought, for the sake of taking advantage of an old association of terms, be called *rhetorica speculativa*, but which I content myself with inaccurately calling objective logic, because that conveys the correct idea that it is like Hegel's logic" [*CP* 1.444].

More explicitly, in his second lecture of the 1898 series on logic ("Detached Ideas on Vitally Important Topics"), he explains:

> The highest kind of symbol is one which signifies a growth, or self-development, of thought, and it is of that alone that a moving representation is possible; and accordingly, the central problem of logic is to say whether one given thought is truly, i.e., is adapted to be, a development of a given other or not. In other words, it is the critic of arguments. Accordingly, in my early papers I limited logic to the study of this problem. But since then, I have formed the opinion that the proper sphere of any science in a given stage of development of science is the study of such questions as one social group of men can properly devote their lives to answering; and it seems to me that in the present state of our knowledge of signs, the whole doctrine of the classification of signs and of what is essential to a given kind of sign, must be studied by one group of investigators. Therefore, I extend logic to embrace all the necessary principles of semeiotic, and I recognize a logic of icons, and a logic of indices, as well as a logic of symbols; and in this last I recognize three divisions: Stecheotic (or stoicheiology), which I formerly called Speculative Grammar; Critic, which I formerly called Logic; and Methodeutic, which I formerly called Speculative Rhetoric. [*CP* 4.9]

Finally in his "Minute Logic" (1902), he makes the definitive connection to normative science, by name: "With Speculative Rhetoric, Logic, in the sense of Normative Semeotic, is brought to a close. But now we have to examine whether there be a doctrine of signs corresponding to Hegel's objective logic" [*CP* 2.111].

Most significantly (in a letter of 1908), he clearly defines a triadic-relation, "the decisive breakthrough," as Klaus Oehler calls it, which distinguishes Peirce's semeotic from the nominalist dyadic sign theories [8: 71].

> It seems to me that one of the first useful steps toward a science of semeiotic ({sémeiötiké}), or the cenoscopic science of signs, must be the accurate definition, or logical analysis, of the concepts of the science. I define a Sign as anything which on the one hand is so determined by an Object and on the other hand so determines an idea in a person's mind, that this latter determination, which I term the Interpretant of the sign, is thereby mediately determined by that Object. A sign, therefore, has a triadic relation to its Object and to its Interpretant. But it is necessary to distinguish the Immediate Object, or the Object as the Sign represents it, from the Dynamical Object, or really efficient but not immediately present Object. It is likewise requisite to distinguish the Immediate Interpretant, i.e. the Interpretant represented or signified in the Sign, from the Dynamic Interpretant, or effect actually produced on the mind by the Sign; and both of these from the Normal Interpretant, or effect that would be produced on the mind by the Sign after sufficient development of thought. On these considerations I base a recognition of ten respects in which Signs may be divided. I do not say that these divisions are enough. But since every one of them turns out to be a trichotomy, it follows that in order to decide what classes of signs result from them, I have 310 or 59049, difficult questions to carefully consider; and therefore I will not undertake to carry my systematical division of signs any further, but will leave that for future explorers. [*CP* 8.343]

In his later work on pragmatism (c.1906), we find evidence in a parenthetical comment recorded in the *CP* that his theory conceives a continuous process called "semiosis," or sign-action; he urges: "(It is important to understand what I mean by *semiosis*. All dynamical action, or action of brute force, physical or psychical, either takes place between two subjects [whether they react equally upon each other, or one is agent and the other patient, entirely or partially] or at any rate is a resultant of such actions between pairs. But by 'semiosis' I mean, on the contrary, an action, or influence, which is, or involves, a coöperation of three subjects, such as a sign, its object, and its interpretant, this tri-relative influence not being in any way resolvable into actions between pairs. {Sémeiösis} in Greek of the Roman period, as early as Cicero's time, if I remember rightly, meant the action of almost any kind of sign; and my definition confers on anything that so acts the title of a 'sign.')" [*CP* 5.484]. He generalizes semiosis beyond sign action of the mind: "The reader may well wonder why I do not simply confine my inquiry to psychical semiosis, since no other seems to be of much importance. My reason is that the too frequent practice, by those logicians who do not go to work [with] any method at all [or who follow] the method of basing propositions in the science of logic upon results of the science of psychology—as contradistinguished from common-sense observations concerning the workings of the mind, observations well-known even if little noticed …—is unsound and insecure" [*CP* 5.485-7].

His semeotic theory investigates how this habit of semiosis is produced and what sort of habit it is, beginning with a general account of the dualistic conditions that precede its triadic sign action, which he identifies with self-control, as previously distinguished from automatic regulation [see *CP* 5.473].

> Every sane person lives in a double world, the outer and the inner world, the world of percepts and the world of fancies. What chiefly keeps these from being mixed up together is (besides certain marks they bear) everybody's well knowing that fancies can be greatly modified by a certain non-muscular effort, while it is muscular effort alone … that can to any noticeable degree modify percepts. A man can be durably affected by his percepts and by his fancies. The way in which they affect him will be apt to depend upon his personal inborn disposition and upon his habits. Habits differ from dispositions in having been acquired as consequences of the principle … that multiple reiterated behaviour of the same kind, under similar combinations of percepts and fancies, produces a tendency—the habit—actually to behave in a similar way under similar circumstances in the future. Moreover—here is the point—every man exercises more or less control over himself by means of modifying his own habits; and the way in which he goes to work to bring this effect about in those cases in which circumstances will not permit him to practice reiterations of the desired kind of conduct in the outer world shows that he is virtually well-acquainted with the important principle that reiterations in the inner world—fancied reiterations—if well-intensified by direct effort, produce habits, just as do reiterations in the outer world; and these habits will have power to influence actual behaviour in the outer world; especially, if each reiteration be accompanied by a peculiar strong effort that is usually likened to issuing a command to one's future self. [*CP* 5.487]

After Peirce considers the possible causes of habit-change and concludes that no entirely new habit can be created by involuntary experiences, he contends that "[e]very concept, doubtless, first arises when upon a strong, but more or less vague, sense of need is superinduced some involuntary experience of a suggestive nature," which is similar to the "instinctive ideas of animals," for whom conditions are relatively unchanging, so that their ideas need not progress. But man's ideas first take the form of conjectures, although they may not be recognized as such; "[e]very concept, every general proposition of the great edifice of science, first came to us as a conjecture" [*CP* 5.480]. Inquiry anticipates answers, just as common sense makes intuitive guesses.

To the extent that we consider what we can conceive (however vaguely) as unknowable, or knowable only by intuition (and that to be unknowable), or knowable only automatically (as instinct), we can not fully inquire about our capability of inquiry and cannot effectively consider the consequences of our conduct. Nominalist modern philosophy and science only attempt to explain our sense of what apparently *is* observable before us, but not how we can imagine what might be, as we certainly *can do,* most obviously in science fiction and other forms of art. According to Peirce, nominalist assumptions eliminate any perspective on the *evolution* of knowledge: "The nominalists' difficulty … is their habit of reducing the possible to the actual and of not distinguishing the actual [or our immediate sense of the existential] from the real [or our mediated experience of the actual as possible]" [*CP*: 1.422]. Especially in its empiricist form, beginning with Ockham, nominalism is theoretically blind to (and so cannot account for) the phenomena of communication and creativity, which Peirce proposes to do in his normative theory of inquiry as the evolution of thought. He clearly identifies its evolutionary nature with Hegel, but then comments: "I sometimes agree with the great idealist and sometimes diverge from his footsteps—for my own method has resulted from a more deliberate examination of the exact theory of logic ... and consequently has a broader form" [*CP* 1.453].

Nominalist philosophy was conceived to study our sense of *apparent* reality, as though what appears to be is simply all we can know, without even questioning why we have a sense of what *might be*—of what we don't know yet but can imagine. Peirce claims that, because of its underdeveloped logical analysis capabilities, nominalism cannot treat general conceptions, such as *reality* (or *common sense,* for that matter) *as objects in our experience*—that is, as phenomena to be scientifically investigated. For Peirce, such general conceptions *are* the very objects, or phenomena, of philosophical inquiry. In his view, these are the conceptions we assume in our everyday instinctive or intuitive behavior based on unexamined feelings, reaction, and beliefs, upon which all our judgments and rational conduct depend. Any theory of inquiry must begin with instinct as a primitive method, he says, but no creature can have instincts for every possible circumstance [see *CP*: 2.178]. "All instinctive beliefs are vague. The moment they are precinded, the pragmatist will begin to doubt them" [*CP* 6.499 (c. 1906)]. Pragmatism is his conjectured method for how to continue improving our methods of inquiry, which can be explained in theoretical terms of semeosis, while normative science investigates the conditions in experience which compel that habit of sign action to occur and to progress.

In a 1904 letter to Dewey, who proposed (following what he takes to be Hegel's suggestion) that normative science be considered as natural history, Peirce distinguishes his view:

> [I]t is one of the characteristics of all normative science that it does not concern itself in the least with what actually takes place in the universe, barring always its assumption that what is before the mind always has those characteristics that are found there and which *Phänomenologie* is assumed to have made out. But as to particular and variable facts, no normative science has any concern with them, further than to remark that they form a constant constituent of the phenomenon. Now nothing like the study the Comparative Anatomists are occupied with can be made of mere possibilities. … There is no anatomy of possibilities because one can say in advance how pure possibilities vary and diverge from one another. Namely, they do so in every possible way. What renders a Comparative Anatomy possible is that certain conceivable forms do not occur. Only a minute proportion of them occur.… Thus there is in the list of chemical elements just that experiential diversity and absence of most possible forms that renders the kind of study called anatomical possible. If then you have a "Natural History" (i.e. a comparative anatomy) of thought,—it is not the merely possible thought that Normative Science studies, but thought as it presents itself in an apparently inexplicable and irrational experience [*CP* 8.239].

4 Conceptual Structures Research in Peirce's Costume?

While Peirce clearly acknowledges his philosophy's affinities to ideas of Hegel, he also emphatically criticizes: "Hegelians overlook the facts of volitional action and reaction in the development of thought. I find myself in a world of forces which act upon me, and it is they and not the logical transformations of my thought which determine what I shall ultimately believe" [*CP* 8.45]. So normative science must begin with the pre-logical phenomena of experience, and explain how beliefs and judgments evolve under the influence of natural forces and feelings. Further investigation of Peirce's unfinished project of normative science must rely on Vincent Potter's detailed scholarly examination of the evidence (primarily Peirce's "Minute Logic" of 1902-3, the seven Pragmatism Lectures of 1903, and a series of *The Monist* articles in 1905-6) to resolve the inconsistencies, paradoxes, and hesitations that Peirce's writings reveal, indicating his uncertainties about that part of his philosophy.

For many years, Peirce struggled to justify ethics and especially esthetics as normative sciences, against his suspicion that they were pre-normative and must be relegated to intuition or instinct (as pre-determined behavior on some bio-evolutionary grounds, making them no more controllable than automatic responses), which is how nominalism must treat them. But he eventually conceived all normative science to study *what ought to be* [see *CP* 1.281], to determine norms or rules which need not but ought to be followed [see *CP* 2.156]. The sense of ought frees mind from material determinism; we always have the possibility to act contrary to an "ought," which implies ideals, ends, purposes which attract and guide deliberate conduct [see *CP* 1.575]. Although Peirce's theory considers the human mind as only one manifestation of Mind which is everywhere in one form or another, ours may perhaps be distinguished in having the greatest capacity for self-control. That theoretical view gives his normative sciences their concern: "We know very well that mind, in some sense, acts on matter, and matter on mind: the question is how" [*CP* 6.101]. His normative sciences are to analyze or define what conditions are required for accomplishment of a purpose, or deliberately chosen conduct that responds to conditions represented as fact [see *CP* 1.575].

By 1903, in his Lectures on Pragmatism, Peirce refers to normative science as the science "which investigates the universal and necessary laws of the relation of phenomena to Ends" [*CP* 5.121]. Here, says Potter, he begins to develop the notion that these sciences all distinguish good from bad: "in the representation of truth, in the efforts of the will, and in objects regarded simply in their presentation, respectively (5.36)" [9: 39]. And he begins to consider the role of pragmatism: "For if, as pragmatism teaches us, what we think is to be interpreted in terms of what we are prepared to do, then surely *logic,* or the doctrine of what we ought to think, must be an application of the doctrine of what we deliberately choose to do, which is Ethics" [*CP* 5.35]. He explains pragmatism as a method that helps us to know what we think, and what we believe, the meaning of which is interpreted as our willingness to act on that thought—in terms of its conceived consequences. "Pragmatism is the principle that every theoretical judgment expressible in a sentence in the indicative mood is a confused form of thought whose only meaning, if it has any, lies in its tendency to enforce a corresponding practical maxim expressible as a conditional sentence having its apodosis in the imperative mood" [*CP* 5.18].

In his seven lectures of 1903, Peirce explains that the essence of logic is to criticize arguments, and to judge arguments as good or bad implies that they are subject to control, so that in the future we can choose good arguments and avoid bad ones, giving us the ability to control and to correct. "Reasoning essentially involves self-control; so that [it] is a species of morality" [*CP* 5.108]. Potter stresses, "This is the very heart of the matter … of Peirce's logic and of his entire philosophical outlook. To make a normative judgment is to criticize; to criticize is to attempt to correct; to attempt to correct supposes a measure of control over what is criticized in

the first place. Any other conception of goodness and badness is idle. In this Peirce was directly opposed to almost all other schools of thought of his day" [9: 41]. Even though Peirce concludes, in the 1903 lectures, that "esthetics considers those things whose ends are to embody qualities of feeling, ethics those things whose ends lie in action, and logic those things whose end is to represent something" [*CP* 5.129], he still hesitates to be sure about esthetics, because esthetic qualities seem to be beyond control. But the importance of that matter for pragmatism is now obvious: "For if the meaning of a symbol consists in how it might cause us to act, it is plain that this 'how' cannot refer to the description of mechanical motions that it might cause, but must intend to refer to a description of the action as having this or that aim. In order to understand pragmatism, therefore, well enough to subject it to intelligent criticism, it is incumbent upon us to inquire what an ultimate aim, capable of being pursued in an indefinitely prolonged course of action, can be" [*CP* 5.135].

By 1905, Potter says Peirce knew a distinction was required "between esthetic qualities themselves, that is, in their own intrinsic reality, and the conscious adoption of them as ideals to be pursued." Then he could argue that the role of esthetics is "to seek out through reflective analysis (1.580) what end is ultimate (can be consistently pursued in any and all circumstances) and to use this as the norm in adopting any particular esthetic quality as an ideal. According to this account of esthetics there would be the necessary element of criticism and control even with respect to the ultimate ideal, not in the sense that the objective reality of that ideal would be affected, but in the sense that one would accept it and conform to it willingly and deliberately" [9: 49]. Potter is certain that Peirce had this in mind, but says it would require many more pages of analysis to interpret the evidence. We do know that in 1905, he wrote the statement: "Pragmatism consists in holding that the purport of any concept is its conceived bearing upon our conduct" [*CP*: 5.460]; meaning cannot be reduced to action, as nominalism must assume. Peirce argues against this nominalism in 1906: "It has been a great, but frequent, error of writers on ethics to confound an ideal of conduct with a motive to action. The truth is that these two objects belong to different categories. Every action has a motive; but an ideal only belongs to a line [of] conduct which is deliberate. To say that conduct is deliberate implies that each action, or each important action, is reviewed by the actor and that his judgment is passed upon it, as to whether he wishes his future conduct to be like that or not. His ideal is the kind of conduct which attracts him upon review. If conduct is to be thoroughly deliberate, the ideal must be a habit of feeling which has grown up under the influence of a course of self-criticisms and of hetero-criticisms; and the theory of the deliberate formation of such habits of feeling is what ought to be meant by esthetics" [*CP* 1.574].

On Potter's reading of all the evidence, Peirce concludes that the *summum bonum* (or the ultimate end or aim) is reasoned and reasonable conduct; that Ethics and logic are specifications of esthetics; and that Ethics proposes what goals may reasonably be chosen in various circumstances, while logic proposes what means are available to pursue those ends [see 9:34]. The pragmatic maxim itself is normative in function: "the meaning of a concept does not lie in any individual reactions at all, but in the manner in which those reactions contribute to [expectation about future experience]" [*CP* 5.3; MS 462 (1903)]; we judge the meaning of a concept by the contribution of the reactions it evokes toward the realization of thought's ultimate aim. And Peirce concludes: "An aim which cannot be adopted and consistently pursued is a bad aim. It cannot properly be called an ultimate aim at all. The only moral evil is not to have an ultimate aim" [*CP* 5.133]. In normative science, then, Peirce's strange costume keeps his word (of 1896): "I follow an order of evolution … the possibility evolves the actuality. So does Hegel" [*CP* 1.453].

How might this "order of evolution," in Peirce's unfinished "strange costume," affect conceptual structures research? Generally, it tells us that nominalist philosophy limits us to the mechanistic—or *causal*—theories of empirical science that cannot help us learn what to expect of ourselves, nor why we should and how we might improve our conduct (which is, after all, the

ultimate aim of inquiry and knowledge), and so cannot assist us in asking what we want our tools to do for us—in augmenting our conduct. Self-consciously conditional, normative theory would study the laws of belief-habit growth, or the evolution of self-control. The science of semeotic, as an expanded logic, could identify our uncriticized or automatic habits of thought and make explicit our self-controlled habits (or beliefs, as intellectual concepts), so that pragmatism could improve their evolution and clarify the aims of any inquiry. Most significantly, we would realize that conceptual structures represent what we more-or-less doubtfully *conjecture,* what we think *ought* to be true, not simply what we *know*. All of us want our activity to amount to something, and especially our inquiry not to become idle. To the extent that we thoughtlessly relegate our goals and aims to intuition or autonomous behavior, we lose control of how we evolve; we become *demoralized*. To the extent that our agency in the evolution of mind and matter is lost in nominalism, we become whatever our machines make of us. Peirce's theory invites conceptual structures research to do otherwise in pursuing normative science [see 10, for more specific indications encouraging future work].

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10. Some recently published material hints at what Peirce's archive still holds toward further development of his normative science. Manuscript number 283, "The Basis of Pragmatism," in his Harvard collection (a very small part of which is printed in the *CP,* but all of which now appears in Volume 2 of the *Essential Peirce,* see reference below), is his sixth attempt to write his third Monist essay of the 1906 series. The editors of the *EP* have added to its title "in the Normative Sciences," because here he clarifies his meaning of "science" as *essentially* self-critical inquiry, and distinguishes scientific philosophy (or Cenoscopic science) from retrospective philosophy as "embracing all that positive science which rests on familiar experience" [*E:* 372]. And here, he explains that *duality,* the object of normative science investigation, consists in no quality of both or either of two things conceived, but consists only in a relation between them [see *EP:* 381]. Not action but *reciprocal action*—action and

reaction—make duality; so that "[a]ll inhibition of action, or action upon action, involves duality." Since all self-control essentially involves inhibition, "[a]ll direction toward an end or good supposes self-control; and thus the normative sciences are infused with duality" [*E:* 385]. In this essay he poses the central question of normative science: What is a sign? Although we might all agree that we use signs to communicate ideas "from the mind of yesterday to the mind of tomorrow into which yesterday's has grown," Peirce cautions here: "This is a question of no ordinary difficulty, to which the answer must be sought by a well-considered method. To begin with, let us consider what the question means; and first, What is its general nature? We are not studying lexicography. … We all have a ragged-outlined notion of what we call a sign. We wish to replace that by a well-defined concept, which may exclude some things ordinarily called signs, and will almost certainly include some things not ordinarily so called. So that our new concept may have the highest utility for the science of logic, which is the purpose of the investigation, the terms of the definition must be strictly relevant to logic. As far as this condition will allow, it is to express that which is most essential in the vulgar notion of a sign or representamen. Now a sign as ordinarily understood is an implement of intercommunication; and the essence of an implement lies in its function, that is in its purpose together with the general idea,—not however, the plan,—of the means of attaining that purpose" [*EP:* 389]. The rest of the essay sketches how normative science would investigate the definition of "sign," finally to give a satisfactory account of hypostasis, an inquiry most fundamental to conceptual structures research. [The Peirce Edition Project. *The Essential Peirce, Volume 2*. Bloomington, IN: Indiana University Press, 1998.]