

# Charles S. Peirce's Philosophy of Value

Winfried Nöth

Pontifical Catholic University of São Paulo, Brazil

## *Abstract*

The critical analysis examines the concept of value in C. S. Peirce's philosophical writings, distinguishing between value as (1) worth, (2) meaning, (3) significance, (4) semiotic value, (5) in the mathematical sense, (6) money value, and (7) value by other names. The focus is on value in the sense of Peirce's three normative sciences aesthetics, ethics, and logic. The values associated with them are detailed in their phenomenological contexts and with respect to a supreme value, the *summum bonum*. Peirce's objections against utilitarian conceptions of value in the philosophy of his century and his conception of scientific research as a value in itself are the author's final topic.

*Keywords:* Charles S. Peirce, value, axiology, philosophy of value, normative science, pure esthetics, ethics, logic, summum bonum, science

## 1. Axiology and Charles S. Peirce's Philosophy of Value

Charles S. Peirce had a keen interest in the classification of the sciences, not only of those that had already established themselves in his time but also of others that he considered a *desideratum* for the future of the sciences. More than ten of his papers are dedicated to the topic (Kent, 1987). Nevertheless, axiology, the philosophy of values, can be found neither in the manifold ramifications of Peirce's taxonomy of the sciences nor elsewhere in his writings. This science only began to establish itself during Peirce's lifetime. Baldwin's *Dictionary of Philosophy and Psychology* of 1901/02, to which Peirce contributed several dozen articles, does not yet contain a lemma for *axiology*, although the theory of value was already a topic of three of its articles, "Value (economic)", "Value (in physical science)", and "Worth", which is the main article on the topic. The latter presents ideas of the Austrian axiologists Alexius Meinong (1853-1920) and Christian von Ehrenfels (1859-1932), who are quoted for books about *Werththeorie* ("theory of values") of 1894 and 1897, although the term axiology is not yet used in them.

The foundation of the philosophy of value in the 19th century is usually attributed to the Neo-Kantian Rudolf Hermann Lotze (1817-1881) and to the philosopher of

the unconscious Eduard von Hartmann (1842-1906) (cf. Hirose & Olson, 2015; Rescher, 2017), but *ipsis litteris*, the term *axiology* was only introduced in 1887, when Hartmann coined it in his *Philosophy of the Beautiful*. Peirce's *Collected Papers* (CP) contain references to both Lotze and Hartmann, which shows that Peirce was familiar with the thought of the two founders of axiology. However, he never discussed their philosophy of value as such.

In view of Lotze's indebtedness to Kant, it is no wonder that the anti-Kantian Peirce did not hold Lotze's philosophy in greatest esteem. For Peirce, values could not be transcendental, as they were for the neo-Kantians, just as the object of a sign could not be transcendental for the semiotician Peirce, for whom it was an object of *lived experience*. In a letter to John Dewey of 1905, Peirce criticized his former student for paying too much attention to Lotze's writings: "I regretted your making everything turn on Lotze, as if he were a Hume. He was in his day a very careful, serious inquirer. But he was never a thinker of great subtilty, and he is now so entirely left behind. [...] In short, I think you could have made a stronger argument if you had let Lotze alone" (CP 8.244).

Although *value* was not a key term in his vocabulary, many of Peirce's ideas imply or presuppose the concept of value. In fact so much so that Philip Wiener, the editor of the first paperback anthology of selected writings by Peirce, published his collection under the title *Values in a Universe of Chance* (Peirce, 1958). However, Peirce's theory of value differs from the ones of many axiologists in several respects. When Hirose and Olson (2015, p. 1), the editors of the *The Oxford Handbook of Value Theory*, declare, "Value theory, or axiology, concerns which things are good or bad, how good or bad they are, and, most fundamentally, what it is for a thing to be good or bad", axiology seems to be characterized as a science concerned with dualisms. Peirce, by contrast, was an anti-dualist. Wherever he saw dualisms, which he classified as phenomena of secondness, he felt challenged to search for triadic constellations, which could explain them as manifestations of phenomena of thirdness, the category of mediation and continuity. About mere dualisms, he wrote, e.g., "Yes and no, are categories which enable us roughly to describe the facts of experience, and they satisfy the mind for a very long time. But at last they are found inadequate, and the third is the conception which is then called for" ("A Guess at the Riddle", CP 1.359, c.1890). The question of how the dichotomies inherent in value judgements are related to notions of the category of thirdness is at the core of Peirce's philosophical considerations on value. First, however, let us see how Peirce used term *value* in his philosophical writings.

## 2. Value in Peirce's Philosophical Vocabulary

The term *value* is missing among the 600 key concepts presented by the *Commens Digital Companion to C. S. Peirce* (Bergman & Paavola, 2013). It is not considered one of Peirce's key terms. Nevertheless, Peirce used the concept frequently in diverse senses. Furthermore, his writings contain a number of other terms that may be read as quasi-synonyms of value, as will be seen below. In a rough survey, one can discern the following kinds of meaning and contexts of *value*: (1) worth, (2) meaning, (3) significance, (4) semiotic value, (5) the mathematical sense, (6) money value, and (7)

value by other names.

### 2.1 Value as worth

It seems as if Peirce's references to *value* in the ordinary sense of "worth" could be ignored in a context concerned with axiology, but even when Peirce uses *value* in this sense, his thoughts could take a philosophical turn. Consider his classification of "books worth reading and re-reading", a topic Peirce takes up at least twice, in 1908 ("Explanation of Curiosity the First"; CP 4.597) and in 1898, as follows:

A book may have three kinds of value. First, it may enrich your ideas with the mere possibilities, the mere ideas, that it suggests. Secondly, it may inform you of facts. Thirdly, it may submit, for your approbation, lines of thought and evidences of the reasonable connection of possibilities and facts. ("Cambridge Conferences, Lecture 3, on 'Detached Ideas on Vitally Important Topics'", CP 5.589, 1898)

The three kinds of value for which a good book should be chosen are derived from the three phenomenological categories, which Peirce distinguished by the names of firstness (quality), secondness (fact), and thirdness (thought) ("Logic of Mathematics: An attempt to develop my categories from within", CP 1.423, c.1896). Some books are valuable from the perspective of firstness, the category of qualitative possibility, creativity, and novelty. Others from the perspective of secondness, the category of facts, real existence, and informativity, and still others from the perspective of thirdness, the category of thought, signs, mediation, analysis, and synthesis.

### 2.2 Value as meaning

Peirce often attributes value to the meaning of a symbol, a general idea, or a concept. The meaning of a concept is an "intellectual value", which "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" ("Some Consequences of Four Incapacities"; CP 5.289, 1868). The value of a symbol, as Peirce conceives it, is thus not the way in which an interpreter actually interprets it—this would be its *interpretant*. It is not a meaning *for* an individual interpreter and it "does not lie in any individual reactions at all" ("Pragmatic and Pragmatism", in *Dictionary of Philosophy and Psychology*, Vol. 2, CP 5.3, 1902). Instead, the value of a sign lies in its semantic potential since "thought is what it is, only by virtue of its addressing a future thought which is in its value as thought identical with it, though more developed" ("Some Consequences of Four Incapacities"; CP 5.316, 1868). The reference to the "more developed" sign in the process of its interpretation is a reference to what Peirce defined as the "growth of signs" in the process of its interpretation, i.e., in semiosis (cf. Nöth, 2016).

The concepts of meaning and value are almost synonyms when Peirce argues that whatever we value is meaningful to us and vice versa. "Meaning is something allied in its nature to value. I do not know whether we ought rather to say that meaning is the value of a word,—a phrase often used,—or whether we ought to say that the value of anything to us is what it means for us,—which we also sometimes hear said. Suffice it to say that the two ideas are near together" ("Reason's Rules", MS 598, 1902).

### 2.3 Value as significance

Often Peirce uses the notion of value in the sense of significance. In a chapter on the significance of thoughts as signs of 1873, value and significance are quasi-synonyms. First, Peirce argues, "The intellectual value of ideas lies evidently in their relations to one another and not to their qualities in themselves". A few lines later, he writes, "The intellectual significance of beliefs lies wholly in the conclusions which may be drawn from them, and ultimately in their effects upon our conduct" ("Chapter V: That the significance of thought lies in its reference to the future", W3, pp. 107-108. CP 7.360, 1873).

Significance in the sense of "importance" or "relevance" is Peirce's topic when he writes about the value of facts for the sciences: "In all its progress, science vaguely feels that it is only learning a lesson. The value of Facts to it, lies only in this ..." ("Lecture 3 on 'Detached Ideas on Vitally Important Topics'", CP 5.589, 1898). In the same sense, "vitally important topics" are topics of great value for the students' general education. Peirce sometimes also denies value to things that he finds "worthless", for example, when he argues that diluted arguments embellished with rhetorical ornaments have "not much value for the serious student" ("Letter to John Dewey", CP 8.239, 1904, June 9).

### 2.4 Semiotic value

Although Peirce does not use the expression, the term *semiotic value* can be introduced here to discuss Peirce's references to the "usefulness" of signs and sign elements in fulfilling their "representative function" ("Some Consequences of Four Incapacities", CP 5.287, 1868). Mere sensations are not yet signs, he writes for example. They "have no value whatever except as a vehicle of thought" ("Eighth Lowell Lecture"; CP 5.601, 1903). Or: "Words would be of no value at all unless they could be connected into sentences by means of a real copula which joins signs of the same thing" (ibid.). Depending on their qualities, different kinds of signs are differently qualified to fulfill their semiotic purpose. Each of the three main sign classes, icon, index, and symbol, has its own semiotic value or utility. For mathematicians, for example, the utility of diagrams (i.e., diagrammatic icons) "consists in their suggesting in a very precise way, new aspects of supposed states of things" ("The Art of Reasoning", CP 2.281, c.1895). The value of an index, such as a yardstick lies in the "real connection which gives the yard-stick its value as a representamen" ("Short Logic", CP 2.286, c.1893). "As for Indices, their utility especially shines where other Signs fail" ("Prolegomena to an Apology of Pragmatism", CP 4.544, 1906). The general utility of a symbol lies in "increasing [the] value of precision of thought as it advances" ("The Ethics of Terminology", CP 1.220, 1903). To fulfill its representative function, a symbol must be connected with the object it represents through a habit that associates the symbol with its object. "Unless there be some way or other which shall connect words with the things they signify, and shall ensure their correspondence with them, they have no value as signs of those things" ("Logic, Chapter 5", CP 7.356, 1873).

Just as in the case of the three values of book reading quoted above, the values of the triad icon-index-symbol are derived from the three phenomenological categories. The icon has the power of representing something as a mere possibility (firstness),

the index represents facts (secondness), and the symbol has the potential of achieving synthesis, continuity and reasonableness (thirdness):

The value of an icon consists in its exhibiting the features of a state of things regarded as if it were purely imaginary. The value of an index is that it assures us of positive fact. The value of a symbol is that it serves to make thought and conduct rational and enables us to predict the future. It is frequently desirable that a representamen should exercise one of those three functions to the exclusion of the other two, or two of them to the exclusion of the third; but the most perfect of signs are those in which the iconic, indicative, and symbolic characters are blended as equally as possible. (“On Existential Graphs, Euler’s Diagrams, and Logical Algebra”, CP 4.448, c.1903)

### **2.5 Value in the mathematical sense**

Value in the mathematical sense of “an unknown quantity”, Peirce explains, is “one of the most fundamental abstractions of the algebraic method of mathematics”. In its simplest meaning, an object of unknown value *has* a value *or* “a quantity” (“The Simplest Mathematics”, CP 4.251, 1902), and a quantity is “a system of inclusions looked upon as [...] a mere system of relative ordinal relations in a linear series. Each complete determination of quantity in a given system is a ‘value’” (“Baldwin’s *Dictionary of Philosophy and Psychology*, Vol. 2”, CP 2.363, 1902).

### **2.6 Money value**

Peirce was not an economist, although some of his writings did address questions of value in terms of money and economy (Hoover & Wible, 2017). In his *Lessons from the History of Science*, he even formulates a law for costs and the financial value of work spent in scientific research in relation to the expectable results:

Knowledge that leads to other knowledge is more valuable in proportion to the trouble it saves in the way of expenditure to get that other knowledge. Having a certain fund of energy, time, money, etc., all of which are merchantable articles to spend upon research, the question is how much is to be allowed to each investigation; and for us the value of that investigation is the amount of money it will pay us to spend upon it. Relatively, therefore, knowledge, even of a purely scientific kind, has a money value. This value increases with the fullness and precision of the information, but plainly it increases slower and slower as the knowledge becomes fuller and more precise. The cost of the information also increases with its fullness and accuracy, and increases faster and faster the more accurate and full it is. It therefore may be the case that it does not pay to get any information on a given subject; but, at any rate, it must be true that it does not pay (in any given state of science) to push the investigation beyond a certain point in fullness or precision. (“Lessons from the History of Science”, CP 1.122, c.1896)

### **2.7 Value by other names**

It is remarkable that Peirce tends to avoid the concept of value and uses other terms instead when it comes to philosophical values in a more strictly axiological sense of an aesthetic, ethical, moral, or economic value. Two terms that Peirce uses instead of

*value* stand out here. One is the term “goodness”; the other is “normative”.

*Goodness*, for Peirce, does not simply refer to the positive pole of some scale from bad to good in esthetic, ethical, or logical contexts. As Potter (1997, p. 29) points out, it is not the chief concern of Peirce’s normative science “to differentiate goodness and badness and to say to what degree a given phenomenon it good or bad. [...] The important question is not how good something is, but whether it is good at all”. Instead of defining goodness in relation to badness, Peirce’s normative science focuses on goodness conceived as “negative goodness” in the sense of faultlessness: “I hardly need remind you that goodness, whether esthetic, moral, or logical, may either be *negative*—consisting in freedom from fault—or *quantitative*—consisting in the degree to which it attains. But in an inquiry, such as we are now engaged upon, negative goodness is the important thing” (“Lectures on Pragmatism V: The Three Kinds of Goodness”, CP 5.127, 1903).

When Peirce discusses *normative* judgments in the sense of value judgments, his framework is his theory of the normative sciences. These are the topic of his Harvard *Lectures on Pragmatism* of 1903 (CP 5.14-212 and Peirce, 1997). Lecture IV deals specifically with “normative judgements” in one of its subchapters (CP 5.108-115), and Lecture V is entirely about “The Three Kinds of Goodness” (CP 5.120-150).

### 3. Values as Norms in the Normative Sciences

The 19th-century philosophy of value emerged from economics, esthetics, and ethics (Rescher, 2017, pp. 8-9). Both Lotze and Hartmann developed their theories of value mainly in the domains of ethics and aesthetics.

For Peirce, aesthetics and ethics are only the first two of three philosophical sciences of values. The third is logic. The three constitute a triad of sciences that Peirce established within his general system of the sciences under the designation “normative sciences”. Peirce did not claim to be the inventor of the term but attributed it to Friedrich Schleiermacher (1768-1834): “The word normative was invented in the school of Schleiermacher. The majority of writers who make use of it tell us that there are three normative sciences, logic, esthetics, and ethics, the doctrines of the true, the beautiful, and the good, a triad of ideals which has been recognized since antiquity” (“Ultimate Goods”, CP 1.575, 1902). The broader framework of this triad is Peirce’s general classification of the branches of philosophy as follows:

Philosophy has three grand divisions. The first is Phenomenology, which simply contemplates the Universal Phenomenon and discerns its ubiquitous elements, Firstness, Secondness, and Thirdness, together perhaps with other series of categories. The second grand division is Normative Science, which investigates the universal and necessary laws of the relation of Phenomena to *Ends*, that is, perhaps, to Truth, Right, and Beauty. The third grand division is Metaphysics, which endeavors to comprehend the Reality of Phenomena. Now Reality is an affair of Thirdness as Thirdness, that is, in its mediation between Secondness and Firstness. (“Lecture on Pragmatism V: The Three Kinds of Goodness”; CP 5.121)

Phenomenology is not concerned with norms or values since its “business is

simply to draw up an inventory of appearances without going into any investigation of their truth" ("Why Study Logic", CP 2.120, 1902). Metaphysics is not concerned with values either since it is "that branch of philosophy which inquires into what is real [...] regardless of whether anybody thinks it is true or not" ("Reason's Conscience", NEM 4:192, 1904).

Normative science, by contrast, is concerned with value insofar as it is "the science of the approvable and unapprovable, or better the blameable and the unblameable", Peirce wrote in 1905 ("Adirondack Summer School Lectures", MS 1334: 36-37). Although formulations such as these suggest dualisms, Peirce argues that it is a "widely spread misconception" to believe that the aim of the normative sciences is to decide

what is good and what bad, logically, ethically, and esthetically; or what degree of goodness a given description of phenomenon attains. Were this the case, normative science would be, in a certain sense, *mathematical*, since it would deal entirely with a question of *quantity*. But I am strongly inclined to think that this view will not sustain critical examination. Logic classifies arguments, and in doing so recognizes different *kinds* of truth. In ethics, too, *qualities* of good are admitted by the great majority of moralists. As for esthetics, in that field qualitative differences appear to be so prominent that, abstracted from them, it is impossible to say that there is any appearance which is not esthetically good. ("Lecture on Pragmatism V: The Three Kinds of Goodness"; CP 5.127, 1903)

Instead of dualisms, Peirce's normative sciences study "the laws of the relation of phenomena to ends" ("Lecture on Pragmatism V: The Three Kinds of Goodness", CP 5.123, 1903). Ends are "the essential object of normative science" ("Lecture on Pragmatism V: The Three Kinds of Goodness", CP 5.130, 1903). The ends differ in each of the three normative sciences. "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", a formulation which shows that logic meant semiotics ("Lecture on Pragmatism V: The Three Kinds of Goodness"; CP 5.120-150, 1903).

Yet, dualisms cannot be entirely ignored in value judgments. However, whereas ends and ideals pertain to the category of thirdness, dualisms are a matter of secondness, the category of conflict and confrontation. Peirce solves this clash between his two phenomenological categories in the normative sciences by recognizing it as a phenomenon of *secondness in thirdness*. Opposites, such as good vs. bad, are phenomena of secondness, even though we encounter them in the domain of thirdness concerned with final causes. Dualisms are most apparent in ethics, "the study of what ends of action we are deliberately prepared to adopt" ("Lecture on Pragmatism V: The Three Kinds of Goodness"; CP 5.130, 1903). Logic is less concerned with dualisms. "Every [moral] pronouncement between Good and Bad certainly comes under Category the Second; and for that reason such pronouncement comes out in the *voice* of conscience with an absoluteness of duality which we do not find even in logic" ("Lectures on Pragmatism IV: The Reality of Thirdness", CP 5.111, 1903; my emphasis).

In aesthetics, however, Peirce argues, dualisms and value judgments become

altogether superfluous since “there is no such thing as positive esthetic badness; and since by goodness we chiefly in this discussion mean merely the absence of badness, or faultlessness, there will be no such thing as esthetic goodness” (“Lecture on Pragmatism V: The Three Kinds of Goodness”; CP 5.131, 1903). Pure esthetics, as Peirce conceives it, is not a science concerned with values. As Peirce sees it, “There is no such thing as positive esthetic badness; and since by goodness we chiefly in this discussion mean merely the absence of badness, or faultlessness, there will be no such thing as esthetic goodness” (“Lecture on Pragmatism V: The Three Kinds of Goodness”; CP 5.132, 1903).

Thus, pure aesthetics can do without dualisms. It is a domain of pure thirdness without any secondness. “I venture to think that the esthetic state of mind is purest when perfectly naive without any critical pronouncement, and that the esthetic critic finds his judgments upon the result of throwing himself back into such a pure naive state—and the best critic is the man who has trained himself to do this the most perfectly” (“Lectures on Pragmatism IV: The Reality of Thirdness”, CP 5.111, 1903). Consequently, Peirce even has doubts whether pure esthetics, as he conceives it, should still count as a “normative” science at all. In addition to his doubts concerning the disappearance of value judgments in aesthetics, there are his doubts as to the applicability of the notion of “ends” in pure aesthetics, “because an *end*—the essential object of normative science—is germane to a voluntary act in a primary way in which it is germane to nothing else. For that reason I have some lingering doubt as to there being any true normative science of the beautiful” (“Lecture on Pragmatism V: The Three Kinds of Goodness”, CP 5.130, 1903).

#### **4. Normative Judgments as Value Judgements Guided by the Ideal of the *Summum Bonum***

The sense in which the normative sciences deal with values is the sense in which their norms, according to Peirce, are ideals, guided neither by necessary laws nor by dualism, but by “norms, or rules which need not, but which ought, to be followed” (“Why Study Logic?” CP 2.156, 1902).

Ends, for Peirce, are final causes (Santaella, 1999), and philosophical final causes are ideals, which imply ultimate values. The norms of logic, according to Peirce, consist in “the control of thinking with a view to its conformity to a standard or ideal” (“Basis of Pragmatism”, CP 1.573, 1906). The norms of ethics have their “root in the nature of the human soul, whether as a decree of reason, or what constitutes man’s happiness, or in some other department of human nature” (“Why Study Logic?” CP 2.156, 1902). In aesthetics, the norm is the ultimate value of the ideal of a *summum bonum* [highest good as a goal]. “Within this principle is wrapped up the answer to the question, what being is, and what, therefore, its modes must be. It is absolutely impossible that the word ‘Being’ should bear any meaning whatever except with reference to the *summum bonum*” (“Partial Synopsis of a Proposed Work in Logic”, CP 2.116, 1902).

The values of the three normative sciences are interrelated in a way that the ultimate value of aesthetics, i.e., its *summum bonum*, is the supreme value of all. Since “esthetics is the science of ideals, or of that which is objectively admirable without



any ulterior reason” (“A Syllabus of Certain Topics of Logic”, CP 1.191, 1903), its values of firstness are then, so to speak, passed on to the secondness of ethics and the thirdness of logic. “Ethics, or the science of right and wrong, must appeal to Esthetics for aid in determining the *summum bonum*. It is the theory of self-controlled, or deliberate, conduct. Logic is the theory of self-controlled, or deliberate, thought; and as such, must appeal to ethics for its principles” (ibid.).

The conception of an aesthetics that embodies an ultimate ideal that is also valid for ethics and logic is the distinctive mark of Peirce’s axiology. Ethics is founded on aesthetics insofar as self-controlled ethical conduct cannot find its justification in its moral judgements as such. It needs to find some ulterior justification for its values, and this ulterior value is the supreme one of the *summum bonum*. The reason why the values of logic are based on the ones of ethics are that “a logical reasoner is a reasoner who exercises great self-control in his intellectual operations; and therefore the logically good is simply a particular species of the morally good” (“Lecture on Pragmatism V: The Three Kinds of Goodness”, CP 5.130, 1903). In this way, logic, being based on ethics, which in turn is based on aesthetics, is also based on the ideals of the *summum bonum*.

An ultimate end of action *deliberately* adopted—that is to say, *reasonably* adopted—must be a state of things that *reasonably recommends itself in itself* aside from any ulterior consideration. It must be an *admirable ideal*, having the only kind of goodness that such an ideal can have; namely, esthetic goodness. From this point of view the morally good appears as a particular species of the esthetically good. (“Lecture on Pragmatism V: The Three Kinds of Goodness”; CP 5.130, 1903)

Ultimately, the normative sciences are thus not only guided by three different kinds of value. At their root is only one, which is the supreme value for all. “The morally good will be the esthetically good specially determined by a peculiar superadded element; and the logically good will be the morally good specially determined by a special superadded element. [...] In order to analyze the nature of the logically good, we must first gain clear apprehensions of the nature of the esthetically good and especially that of the morally good” (“Lecture on Pragmatism V: The Three Kinds of Goodness”, CP 5.131, 1903).

## 5. Values and the Ends of Science

The value of the normative science of logic, which is the value of advancing our “knowledge of the truth” (“Why Study Logic?” CP 2.189, 1902), is also a value science strives for, since logic, in Peirce’s broad conception, is the “art of devising methods of research” (“Introductory Lecture on the Study of Logic”, W4, p. 378, 1882). However, truth takes various forms among the various sciences, of which logic is only one. Without falling into the trap of scientific value relativism, Peirce subsumes logical truth under scientific truth as follows:

As to the word “true”, I may be asked what this means. Now the different sciences deal with different kinds of truth; mathematical truth is one thing, ethical truth is another, the

actually existing state of the universe is a third; but all those different conceptions have in common something very marked and clear. We all hope that the different scientific inquiries in which we are severally engaged are going ultimately to lead to some definitely established conclusion, which conclusion we endeavor to anticipate in some measure. Agreement with that ultimate proposition that we look forward to,—agreement with that, whatever it may turn out to be, is the scientific truth. (“On the Logic of Drawing History from Ancient Documents Especially from Testimonies”, CP 7.187, c.1901)

Arguing against the utilitarian thinking of some of his contemporaries, Peirce attributes a value in itself to scientific truth, for “the only end of science, as such, is to learn the lesson that the universe has to teach it” (“Lecture 3 on ‘Detached Ideas on Vitally Important Topics’”, CP 5.589, 1898). In contrast to logic, which is concerned with truth as a value in itself, the empirical sciences are mainly concerned with facts, but the value of their facts is not a value in itself. Science “regards facts as merely the vehicle of eternal truth” and their value “lies only in this, that they belong to Nature; and Nature is something great, and beautiful, and sacred, and eternal, and real—the object of its worship and its aspiration”, says Peirce (*ibid.*).

Science seeks to discover whatever there may be that is true. I am inclined to think that even single perceptual facts are of intrinsic value in its eyes, although their value in themselves is so small that one cannot be quite sure that there is any. But every truth which will prevent a future fact of perception from surprising us, which will give the means of predicting it [...], this it is, beyond doubt, that which science values. [...] Science will value these truths for themselves, and not merely as useful. (“The Logic of Drawing History from Ancient Documents”, CP 7.186, 1901)

Despite their value for attaining scientific truths, facts alone, together with the method of induction based on the facts it interprets, cannot sufficiently advance scientific knowledge. In addition, the methods of deduction and abduction are needed. Abduction operates in the form of explanatory hypotheses, which have their own value in scientific research:

What should an explanatory hypothesis be to be worthy to rank as a hypothesis? Of course, it must explain the facts. But what other conditions ought it to fulfill to be good? The question of the goodness of anything is whether that thing fulfills its end. What, then, is the end of an explanatory hypothesis? Its end is, through subjection to the test of experiment, to lead to the avoidance of all surprise and to the establishment of a habit of positive expectation that shall not be disappointed. (“Lectures on Pragmatism VII: Pragmatism and Abduction”; CP 5.197, 1903)

Furthermore, logical truth is not the only value for which science strives. Ethical and social values play equally important roles. Scientific progress is a collaborative endeavor, “for in science a question is not regarded as settled or its solution as certain until all intelligent and informed doubt has ceased and all competent persons have come to a catholic agreement” (“Harvard Lectures on British Logicians I, ‘Early Nominalism and Realism’” CP 1.32, 1869). This makes solidarity and collaboration

with competent scientists valuable as well as necessary in science: “The man of science attaches positive value to the opinion of every man as competent as himself, so that he cannot but have a doubt of a conclusion which he would adopt were it not that a competent man opposes it” (ibid.).

The method of modern science is social in respect to the solidarity of its efforts. The scientific world is like a colony of insects, in that the individual strives to produce that which he himself cannot hope to enjoy. One generation collects premises in order that a distant generation may discover what they mean. When a problem comes before the scientific world, a hundred men immediately set all their energies to work upon it. One contributes this, another that. Another company, standing upon the shoulders of the first, strike a little higher, until at last the parapet is attained. Still another moral factor of the method of science, perhaps even more vital than the last, is the self-confidence of it. In order to appreciate this, it is to be remembered that the entire fabric of science has to be built up out of surmises at truth. All that experiment can do is to tell us when we have surmised wrong. The right surmise is left for us to produce. The ancient world under these circumstances, with the exception of a few men born out of their time, looked upon physics as something about which only vague surmises could be made, and upon which close study would be thrown away. So, venturing nothing, they naturally could gain nothing. But modern science has never faltered in its confidence that it would ultimately find out the truth concerning any question in which it could apply the check of experiment. (“Scientific Method”, Baldwin’s *Dictionary of Philosophy and Psychology*, Vol. 2, CP 7.87, 1902)

Despite the lack of academic recognition in his career as a philosopher and despite his mistrust in the political economy of his century, which he denounced for preaching the “Gospel of Greed” (“Evolutionary Love”, CP 6.293, 1893), Peirce never lost his confidence in the communitarian and self-justifying values of science. He also rejected the creed of his century “that progress takes place by virtue of every individual’s striving for himself with all his might and trampling his neighbor under foot whenever he gets a chance to do so” (Peirce’s caricature; ibid.). Instead, he remained confident that science would advance through the collective and cooperative engagement of all members of the scientific community.

Trusting in the autonomy of the values of science, he was rightfully convinced that the ideals of scientific research embody values, which retain their validity beyond the limits of the individual scholar’s lifetime:

It seems to me that we are driven to this, that logicity inexorably requires that our interests shall not be limited. They must not stop at our own fate, but must embrace the whole community. This community, again, must not be limited, but must extend to all races of beings with whom we can come into immediate or mediate intellectual relation. It must reach, however vaguely, beyond this geological epoch, beyond all bounds. He who would not sacrifice his own soul to save the whole world, is, as it seems to me, illogical in all his inferences, collectively. Logic is rooted in the social principle. (“The Doctrine of Chances”, CP 2.654, 1878)

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## About the author

Winfried Nöth (noeth@uni-kassel.de), Ph.D., Professor of Linguistics and Semiotics, and Director of the Interdisciplinary Center for Cultural Studies, University of Kassel until 2009, and Humboldt University, Berlin (2014-15), has been teaching Cognitive Semiotics at the Catholic University of São Paulo since 2010. His research topics are General and Applied

Semiotics, Cognitive Semiotics, and Charles S. Peirce. Selected books: *Handbook of Semiotics* (1990, rev. German, 2000), *Semiotic Theory of Learning* (2018, with A. Stables, A. Olteanu, E. Pikkarainen and S. Pesce), *Imagem: Comunicação, semiótica e mídia* (2002) and *Introdução à semiótica* (2017) (with Lucia Santaella), and the collected editions: *Origins of Semiosis* (1994), *Semiotics of the Media* (1997), and *Crisis of Representation* (2003).