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The role of the normative sciences in the evolution of Peirce's pragmatism

https://doi.org/10.1515/css-2024-2023

Abstract: I argue that the introduction of the normative sciences in Peirce's 1903 Harvard Lectures was prompted by ethical concerns related to his pragmatic maxim and his pragmatism, generally. In the new formulation of the maxim, Peirce shows the relation between theory and practice more clearly. At the same time, since theoretical beliefs can translate to practical ones, this shows how the practical application of theoretical science can be used for any purpose, good or ill. I show how Peirce uses an Aristotelian strategy to identify a highest end as a test of the moral character of practical maxims, namely, whether the means and ends derived from the maxim are conducive to that end.

Keywords: ends; ethics; Harvard Lectures; practical reasoning

1 Introduction

After Peirce received the disappointing news in 1903 from the Carnegie Foundation that it would not fund his collection of "memoirs," William James set up a series of paid lectures at Harvard for his scholar-friend (Turrisi 1997: 1–4). It was an opportunity for Peirce to deliver a definitive account of his pragmatism and to contrast it with the versions of James, Schiller, and other interpreters.

In these lectures, Peirce gave a reformulation of his pragmatic maxim and, at the same time, recast logic as a normative science, arguing for its dependency on ethics and esthetics – the latter understood as the study of ends. I want to argue here that the introduction of the normative sciences is prompted by how he understood the ethical consequences of his pragmatism. In agreement with scholars such as Potter (1967: 54–55) and Robin (1997: 140–141) and contrary to Stango's claims (2015: 35–36), there is a new direction here that Peirce takes. It leads him to integrate the normative sciences into his work on logic – as evident in the drafts of his *Minute logic* and elsewhere – and to reformulate his pragmatism accordingly.

This new direction is indicated by his refinement of the pragmatic maxim in a way that better clarifies the relation between theory and practice, that is, how

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theoretical claims transpose to practical maxims of conduct in the form of what Kant (1959: 31–32n4) called hypothetical or pragmatic imperatives. Such imperatives, as Kant noted, are simply amoral prudential rules for attaining any desired end. As such, I argue that, at least by 1901, Peirce now recognizes that the pragmatic maxim is ethically problematic, instrumental, and can be used for either good or ill ends. Although it remains a method for "ascertaining meanings," "the ulterior and indirect effects of practicing the pragmatistic method […] is quite another matter" (Peirce 1978: CP 5.464). For this reason, it requires the oversight of ethics and, ultimately, esthetics. In the process, I will discuss how Peirce adopts an Aristotelian rather than a Kantian strategy to solve the ethical problem of pragmatism, by identifying an ultimate end that can then evaluate rules of conduct by determining whether they are or are not conducive to this *summum bonum*.

2 Three surprises in the Harvard Lectures

In the opening lecture, there are a number of surprises that students of Peirce would note. In the very first lines of the talk, Peirce proclaims that, "My want of skill in practical affairs does not prevent me from perceiving the advantage of being well imbued with pragmatism in the conduct of life" (1978: CP 5.14). This is completely contrary to the claims in the Cambridge Lectures, given just five years earlier in 1898, where he strongly urged a severe separation of theory and practice: "I stand before you […] condemning with the whole strength of conviction the Hellenic tendency to mingle philosophy and practice" (1978: CP 1.618). "Now, the two masters, *theory* and *practice*, you cannot serve" (1978: CP 1.642). Here in the Harvard Lectures, he reinforces the claim that pragmatism is essentially about the relation between theory and practice.

Secondly, he gives a revised formulation of the pragmatic maxim that brings out this connection between theory and practice even more strongly. The original formulation of the pragmatic maxim in 1878 is stated as:

> Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object. (1978: CP 5.402)

The new formulation in the Harvard Lectures states:

> […] 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 with its apodosis [consequent clause] in the imperative mood. (1978: CP 5.18)

There are several important differences from the original here. First, note that the original focuses on the meaning of the "object of our conception." In the reformulation, there is now reference to the meaning of a "theoretical judgment" in its place. In later writings, Peirce clarifies the analytic relation of concept to judgment, and shows the chain of reasoning from judgment to conduct by way of his notions of belief, proposition, and assertion. Peirce claims that, "Every new concept first comes to the mind in a judgment" (1978: CP 5.546). A judgment is a "genuine assertion" (1978: CP 5.547). An assertion is a speech act which entails certain responsibilities of the utterer related to a proposition claimed as true (1978: CP 5.543). In turn, beliefs are expressed in propositions (1978: CP 5.542). Furthermore, "every proposition […] must have some possible bearing upon practice." Since beliefs are expressed in propositions then "[…] every theoretical belief is, at least indirectly, a practical belief […]" (1978: CP 5.539), the latter expressed as a maxim of conduct. Finally, "A practical belief is what a man proposed to go upon" (1978: CP 7.185). It engenders "a habit of deliberate behavior" (1978: CP 5.538).

In this way, a theoretical judgment involves an assertion of a proposition, a judgment about the truth of the proposition. In turn, every theoretical belief has a practical belief as its correlate, and every theoretical judgment has a corresponding practical judgment. As he clarifies, "The argument upon which I rested the maxim in my original paper was that *belief* consists mainly in being deliberately prepared to adopt the formula believed in as the guide to action. If this be in truth the nature of belief, then undoubtedly the proposition believed in can itself be nothing but a maxim of conduct" (1978: CP 5.28). In this sense, the pragmatic maxim is an attempt to show how meaning is related to conduct. In the language of semiotics, the ultimate interpretant of a sign is the habit of action which interpretation of the sign engenders (1978: CP5.491; CP 5.486; Fitzgerald 1966: 132). The ultimate interpretant is "a description of the habit which the concept is calculated to produce" (1978: CP 5.491). In effect, meaning is clarified in how it plays out in practical life, that is, in terms of the habits of conduct it engenders in practical life.

Consider Peirce's classic example of the meaning of hardness. To call a thing scratch-hard by the pragmatic maxim is to say "that it will not be scratched by many other substances" (1978: CP 5.403). So, for example, if a diamond is hard, it should scratch many other substances – as measured typically by a sclerometer. According to the new formulation of the pragmatic maxim, this would "enforce" a corresponding practical maxim. The practical maxim would be a conditional with a command in its consequent clause: If p, do q. Suppose people want to cut glass. Given the theoretical claim that diamonds are scratch-hard, the corresponding practical maxim would be: If the end is to cut glass, then use a diamond cutter. A modification of Fitzgerald's example is similar: If x is a bell, then striking it will cause it to ring. Consequently, if one wishes to hear a bell ring, then strike it (1966: 128).

Any student of Kant will recognize this reformulation of the pragmatic maxim as what Kant himself called a hypothetical or "pragmatic" maxim. These are maxims of prudence that propose a means that is likely to attain an end (Kant 1959: 31–32n4). A pragmatic maxim "instructs the world how it could provide for its interest better than, or at least as well as has been done in the past" (1959: 34n6). Peirce certainly recognizes this, although rather indirectly. As he notes, he rejected the suggestion from some friends that he should call his philosophy "practicalism."

> But for one who had learned philosophy out of Kant, […] and who still thought in Kantian terms most readily, *praktisch* and *pragmatisch* were as far apart as the two poles, the former belonging in a region of thought where no mind of the experimentalist type can ever make sure of solid ground under his feet, the latter expressing relation to some definite human purpose. [It was the] recognition of an inseparable connection between rational cognition and rational purpose […] which determined the preference for the name *pragmatism*. (1978: CP 5.412)

For Kant, practical morality is bound up with the moral law, expressed by categorical imperatives; pragmatic matters are bound up with prudence in the form of hypothetical imperatives.

The third surprise is that Peirce links the pragmatic maxim to the normative sciences of ethics and esthetics, which he introduces in the first lecture. This is a rather new direction for him, based certainly on his proposed "Minute logic," drafted in the previous year and already hinted at in his review of Karl Pearson's *Grammar of science*, the year before. He seems prepared here to give it a public hearing. In doing so, he provides a general outline of the function and ordering of the three normative sciences of logico-scientific reasoning, ethics, and esthetics – the latter understood in a novel sense as the study of ends. Logic has as its end truth, but since logic evaluates reasoning into good or bad reasoning, it falls under the domain of ethics, which studies the matter of good and bad conduct generally. Since conduct is primarily purposive, aiming at some end, then esthetics – as Peirce formulates it – studies those ends worthy of pursuit. In a certain sense, then, the normative sciences are anchored by what would count as a good end and, indeed, ultimate end or *summum bonum.* It is in the fifth lecture that he provides a somewhat more detailed, although somewhat confusing account of the three normative sciences. As I have argued elsewhere, it is only in looking at his work from about 1900 as a whole in manuscripts and published papers that one gets a clearer picture of his normative sciences (Liszka 2021: 4).

3 The ethical problem with the pragmatic maxim

Why the connection of his pragmatism with ethics and esthetics? Once Peirce realizes that the pragmatic maxim entails hypothetical imperatives, as a Kant

scholar, he understands Kant's complaint about such imperatives from an ethical point of view. Because they are prudential, they also lack a solid moral foundation. In effect, they are amoral, since they depend on the interests, desires and ends – good or ill – of the agents involved. Hypothetical imperatives can be formulated for the vilest ends, but also for good ones, but they do not determine which ends are good or vile. As Max Fisch points out, the pragmatic maxim as expressed seems to entail a kind of hedonism, since it is couched in the language of desire and interest (1986: 369).

Hypothetical imperatives form the basis of what is usually called practical or prudential reasoning. Generally speaking, this takes the following form: If some agent, A, desires an end, E, and if the agent believes that some set of actions, A, will likely attain that end, then, given opportunity and ability, they ought to do A – the last clause nothing more than a hypothetical imperative. Practical reasoning is usually framed within a desire-belief theory of motivation – that people tend to act on what they believe will attain their desires. As I argued elsewhere, Peirce promotes a version of the desire-belief theory based on Alexander Bain's work on psychology – a theory to which pragmatism, as Peirce says, is "scarce more than a corollary" (1978: CP 5.12; Liszka 2021: 86–91).

Peirce points to this prudential function of the pragmatic maxim in a couple of examples given in the first Harvard Lecture. Although he introduces one example about the insurance business as an application of the maxim to the meaning of probability, the case is really about profitability. As James Wibble explains it:

> A probability is used to determine the risk associated with each policy and the price that must be charged in order for the insurance firm to survive. If policies are sold in very large numbers then an estimate can be formed regarding the fraction of policies that will encounter a loss during the year. The problem of insurance is to sell the quantity of policies that maximizes the profit of the firm. (Wibble 2014: 556)

For example, it would be supposed that the health condition of the insured would affect the price charged for the policy. A heavy smoker would be charged more than a non-smoker, since the probability of an early death is greater for the former and much less for the latter. With some fudging as noted by Wibble, Peirce essentially lays out the profitability formula:

> Pn - qln = (p - ql)n, where p= price; n= number of policies sold at price p; q = fraction of policies incurring a loss; and l is the loss per policy incurring a loss. (1978: CP 5.20)

Peirce then goes on to use calculus to solve the optimization problem for this formula (1978: CP 5.20).

In general, Peirce clarifies what profitability would mean for a business in terms of a prudential maxim, mathematically formulated, that ought to be followed if maximum profit is the end: If a business seeks a profit, then follow this mathematical

formula. But in the process, Peirce also makes clear that such maxims – just as Kant warned – are morally rudderless. Although, certainly, a business has to make a profit to stay in business, the maxim could also apply to the business of a drug cartel, arms dealer, or the Mafia. Nor does it say what price for the product might be affordable for consumers, or anything as to the quality of the product; nor does it say a hundred other things that should be taken into consideration in making a profit if fairness and ethics were a concern.

There is another motivation for the connection with ethics. Peirce sees himself primarily as a scientist. I think Peirce was particularly worried about how science was being used instrumentally in the Gilded Age of America, to which he was witness, and he worried that the practice of science might be corrupted by capitalism and industry (1978: CP 8.255; CP 2.198; CP 5.513). Ironically, Peirce's pragmatism was a herald of this coming confluence of science and industry, since the pragmatic maxim is generally a formula for converting theoretical hypotheses into practical results. I think that Peirce is well aware of the implications of his pragmatic maxim. As he says, "pragmatism is generally practiced by successful men." "Efficient men are distinguished from inefficient men through the practical advantage of being able to think pragmatically" (1978: CP 5.25).

Peirce comes to realize that the pragmatic maxim leaves the ethical character of the practical maxim open-ended. As he writes later, "since pragmaticism makes the purport to consist in a conditional proposition concerning conduct, a sufficiently deliberate consideration of that purport will reflect that the conditional conduct ought to be regulated by an ethical principle, which by further self-criticism may be made to accord with an esthetical ideal" (1978: CP 5.535).

4 Peirce's Aristotelian solution to the ethical problem of the pragmatic maxim

Kant posed the idea of a categorical imperative as a solution to the moral problem of hypothetical imperatives (1959: 31). If the hypothetical imperative could meet the test of a categorical one – that if universalized, it would not meet with absurdity or contradiction – then that would justify it. For example, if someone were to knowingly make a false promise, and if everyone did so, then promise-making would make no sense.

However, Peirce does not take the route of Kant. He is skeptical of Kant's transcendental proofs and the categorical imperative (1978: CP 5.133; CP 2.113). As I have argued elsewhere, Peirce takes the path of Aristotle instead, and argues that the test of a hypothetical imperative is whether it is conducive to an ultimate end (Liszka

2022: 222). Just as Aristotle argues that happiness, flourishing, is an ultimate end for human endeavor and that the exercise of the virtues is conducive to that end (Aristotle 1984: 1098b25-30), Peirce employs the same strategy even if he disagrees with Aristotle's claim for the ultimate end.

In the fifth Harvard Lecture, Peirce lays out the groundwork for the normative sciences and what roles they are to play in the Aristotelian strategy. It is clear here that his work is very preliminary as he tries to work out the enormous task he has set for himself. Fortunately, it is possible to get a very good sense of the systematic framework of the normative sciences from the drafts of the *Minute logic* and several relevant manuscripts.

To put it generally, given the Aristotelian strategy for the solution to the ethical problem of hypothetical imperatives and practical reasoning, the normative sciences of logico-scientific reasoning, ethics, and esthetics each have a role to play in securing the ethical character of pragmatic, hypothetical maxims. Logico-scientific reasoning is concerned with determining the truth of the theoretical claim at the basis of the pragmatic maxim, but also whether the maxim itself is likely to attain the end desired. If the belief upon which the conduct is based is false, then that is certainly undesirable, and a first precondition for doing the right thing. Acting on false beliefs does not even fulfill the minimal sense of following a hypothetical imperative.

Once the truth of the hypothetical imperative has been established – the truth as far as is reasonable – ethics serves to evaluate the moral aspects of the corresponding rule of conduct and esthetics concerns delimiting those ends worthy of pursuit, including the highest such end. As James Wibble argues "this means that a pragmatic assertion should be true as a matter of logic, right or good as a matter of ethics, and admirable as an application of an ideal" (2014: 554). Whereas logico-scientific reasoning ensures true claims in the long run, as these are translated into pragmatic maxims, the job of ethics is to determine whether they are conducive to an ultimate end. The job of esthetics is to figure out this ultimate end. Together, this would seem to solve the fundamental ethical problem of hypothetical imperatives, since it would add constraint to both means and ends (Liszka 2021: 98–99).

5 Peirce's search for a highest end

As in Aristotle's approach in *Nicomachean Ethics*, since everything hinges on identifying the highest end (Aristotle 1984: 1094a 23–24), Peirce sets about tackling this very difficult problem. His manuscripts show that he worked through at least 28 candidate ends (Liszka 2021: 199; Robin 1967). In all his ruminations, three ends seem to stand out in his more cogent account. The first is a clear expression of the utilitarian principle, to bring about some general state of feeling, such as "the greatest

pleasure for the greatest number of persons." The second end relates to the ends of a society, the ends of "peace and prosperity." The third is the most interesting: "to further the realization of an ideal not definable in advance, otherwise than as that which tends to realize itself in the long run" (Robin 1967: R1429: 14). These three ends echo his phenomenological categories: the first has to do with the quality or feeling of pleasure and pain; the second with contractual relations among people; and the third with generality.

The third end is rather odd, because it not an end so much as a process for seeking an ultimate end: "the ideal is one whose character cannot be known in advance, so that it can only be defined as the result, whatever it may be, of a process recognized as productive of the good" (Robin 1967: R1434: 6). Thus, it is something that would develop and evolve over time. As he writes, "how can we be expected to allow the assumption to pass that the admirable in itself is any stationary result?" (1978: 1.614).

Peirce seems to suggest that these ends work together in a certain order (1978: CP 1.615; Liszka 2021: 208). If so, it sets a rather ideal end for humanity: Communities are designed in a way that their practices maximize pleasure and comfort, promote prosperity and peace among its members who, all the while, are engaged in a continued search for the highest end. The ordering of the ends might be best explained by John Rawls's idea of lexical ordering (1971: 42). The maximization of pleasure cannot counter the end of a peaceful and prosperous society, nor can either end work against the design of inquiries about managing ends.

Here, Peirce is arguing that, if an ultimate end is to be found out, then it will be by some process (Kent 1976: 270). That suggests the process itself is the end that is being sought (Aydin 2009: 431). But that creates something of an anomaly. Processes produce something, so should the thing it produces be the end? This needs to be addressed.

If the process is seeking an ultimate end, then its discovery is matter of inquiry. There's no doubt that Peirce thinks that science is the best practice of inquiry known (1978: CP 5.575; CP 2.769). But Peirce has a very complicated view of the practice of science. It is not just about method, the employment of experiment, and inductive tests. Although these are core to the success of science, the practice also involves many normative features: moral sentiments, virtues, community, solidarity among inquirers, and a certain set of norms that must be followed for successful inquiry. Peirce claims these are just as important as the method (1978: CP 7.87). But what are these sentiments, virtues, and norms?

6 The ethical character of inquiry

Peirce thinks that one of the central features of scientific practice that makes it so successful is its ability to detect and correct error, its power of "self-correction" (1978:

CP 5.575). People are often wrong. "*Humanum est errare*" (1978: CP 1.9) and, for that reason, it is important to recognize error in order to avoid it. To recognize error is to indirectly affirm some truth.

The recognition of error is one thing, but people must be willing to correct that error in order to have any effect. Human agency is primarily purposive, according to Peirce, aiming at some end, as Aristotle also suggests (Aristotle 1984: 1094a). For this reason, error is most often framed by the quest for some end. Peirce argues that "the essence of rationality lies in the fact that the rational being will act so as to attain certain ends. Prevent his doing so in one way, and he will act in some utterly different way which produces the same result" (1978: CP 2.66). "Rationality" seems to be cognate here for what Peirce calls "reasonableness" in other places (1978: CP 5.3). Reasonable or rational agents change their erroneous paths, correct the false beliefs that send them on the wrong path to their goals.

Three practical postulates follow from the matter of error. The first is a willingness to inquire. The recognition of error calls up inquiry. Second, the only way an inquiry can progress is if the inquirers show a willingness to admit error. Recalcitrant belief, ignoring counterevidence, exhibits cognitive dissonance and confirmation bias, both of which corrupt inquiry. The third postulate involves a willingness to correct from error and, consequently, to make progress in the inquiry. Together, these three postulates constitute the practice of "self-correction" – the basis for learning and growth, and a key feature of the success of the scientific method (1978: CP 6.301).

Students of Peirce will see these three postulates as consonant with Peirce's doctrine of fallibilism. The doctrine does not entail skepticism, but only the recognition that beliefs are sometimes right and sometimes wrong. However, if there's no reason to doubt what is believed, then there's no reason to doubt the belief until there is a reason to. Still, it's possible that one may be wrong even if there is currently nothing to gainsay this (1978: CP 1.13). Fallibilism accounts for much of the success of science. Its methodology is especially good at detecting error – mostly in the form of induction – and, most importantly, it has cultivated a community of inquiry whose norms and ethos follow this fallibilist creed (Lorino 2018). It scrutinizes hypotheses. It is dedicated to seeking out errors, recognizes them with full publicity, and works to correct them. As Mercier and Sperber (2017: 320–321) characterize it, even individual scientists may be prone to confirmation bias, but the design of scientific practice foils that fault in the long run. This accounts for the exceptional progress of science.

The correction of error also entails a second doctrine of meliorism. Peirce defines it as "the doctrine that the world is neither the worst nor the best possible, but that it is capable of improvement: a mean between theoretical pessimism and optimism" (as cited in Bergman 2012: 127). It supposes that conceptual or practical problems can be ameliorated even if they cannot be perfectly solved. Peirce gives

an example from the history of philosophy. Many systems of philosophy "have been of the nature of reforms, sometimes amounting to radical revolutions, suggested by certain difficulties which have been found to beset systems previously in vogue" (1978: CP 6.8). He uses the analogy of remodeling a house, where the offending parts are replaced with something better.

Meliorism involves certain moral sentiments that support it. Even though improvements can benefit the generation who makes them, in many cases, they may come at a cost, and the benefit only be realized by future generations. In many cases the work of the current generation may only serve as a platform for the success of future generations. Meliorism entails an intergenerational altruism which Peirce calls "evolutionary love." It is a desire to make things better for others, even if one does not benefit from it – to pass on what is deemed good, and to "change that which is hateful," into something better, to "move things toward loveliness" (1978: CP 6.289). This is a moral sentiment key to inquiry, which is almost always built on the scaffolding made by inquiring ancestors. "One contributes this, another that," Peirce says. "Another company, standing upon the shoulders of the first, strikes a little higher, until at last the parapet is attained" (1978: CP 7.87). Such a sentiment creates solidarity among inquirers, promoting cooperation over time.

Inquirers must also have certain virtues to ensure success. Inquiry requires honesty above all. Inquiry could not achieve its end of discovering claims less subject to error if inquirers intentionally promoted known falsehoods, falsified data, or fell prey to confirmation bias. Fallibilism is the hallmark of inquirers and prevents them from being wedded to the claims they wish to prove. Inquirers must practice a sort of disinterest, check their biases regarding any hypotheses through some "veil of ignorance" – to use John Rawls's thought experiment – to disentangle subjective interests from public discourse (Rawls 1971: 136).

But there are also certain norms embedded in the practice of inquiry as several Peirce scholars from different theoretical approaches have suggested. Apel (1980), Habermas (1990), Misak (2000), and Talisse (2005) have argued that communities of inquiry entail certain dialogical norms, such as the equality of participation of inquirers and of those affected by inquiries, disqualification of the use of force or coercion, and the elimination of the arbitrary and capricious exclusion of others. These scholars have made more explicit the communal and dialogic norms implicit in communities of inquiry.

Of course, the proper methodology is also a vital factor in the correction of error and improvement. It is well known that Peirce thinks there are three distinct types of scientific reasoning vital to the success of science. The experimental method is constituted by an interlocking and reiterative process of a triad of reasoning types: abduction, deduction, and induction. When done rightly, they progress knowledge in a way that maps a conical helix, moving upward toward an apex as a smaller set of

alternative hypotheses survive severe tests, leading to hypotheses that are ostensibly less riddled with error.

Abduction is concerned with the formation of a new hypothesis, or the modification of an existing one, based on experimental, observational anomalies with existing ones. As Peirce says, "a given object presents an extraordinary combination of characters of which we should like to have an explanation" (Robin 1967: R692). Deduction, in this context, determines what must follow from the adoption of the novel hypothesis, what the inquirer should expect to observe under experimental conditions. Finally, induction, in its varieties, detects error in either adopting or rejecting the hypothesis, based on the expected results of the experiment. Should the results of the experiment favor rejecting the hypothesis, then the cycle begins again. Peirce explains this cycle once a hypothesis has been formed through abduction:

> That which is to be done with the hypothesis is to trace outs its consequences by deduction, to compare them with results of experiment by induction, and to discard the hypothesis, and try another, as soon as the first has been refuted, as it presumably will be.
> (1978: 7.220).

Self-correction is captured by this collection of practical postulates, combined with the sentiments, virtues, norms, and the reasoning methodology central to inquiry. In turn, Peirce sees self-correction as the key to learning and growth (1978: CP 6.301). Peirce writes that "one of the most wonderful features of reasoning and one of the most important philosphemes in the doctrine of science" is that "reasoning tends to correct itself, and the more so, the more wisely its plan is laid" (1978: CP 5.575). "So it appears," he concludes, "that this marvelous self-correcting property of Reason […] belongs to every sort of science […]" (1978: CP 5.579). When inquiries are "fully" carried out, as they are in science, they have "the vital power of self-correction and of growth" (1978: CP5.582).

In employing the Aristotelian strategy for resolving the issue of hypothetical imperatives and practical reasoning, Peirce can argue that, just as the virtues are for Aristotle what is conducive to the highest end of flourishing, so the normative structure of inquiry employs virtues, sentiments, and norms that provide ethical constraints on both the design of means to ends and the ends themselves. In this way, the process of inquiry provides the ethical constraints needed for hypothetical or pragmatic maxims and practical reasoning generally. Whereas Aristotle sought refuge in the idea of practical wisdom as such a remedy (Aristotle 1984: 1141a-b), Peirce seeks it in the normative character of scientific inquiry.

7 Reasonableness as the highest end

Although Peirce declares that the ultimate end is not known ahead of an ongoing process of inquiry, nonetheless he doesn't resist naming his own candidate: "reasonableness." He states this earlier in 1901 in a review of Karl Pearson: "The only desirable object which is quite satisfactory in itself without any ulterior reason for desiring it, is the reasonable itself" (1978: CP 8.140). Interestingly, although he mentions reasonableness in the Harvard Lecture (1978: CP 5.121), he does not declare it there as the highest end. However, shortly thereafter, he declares it so in the Lowell Lectures of 1903:

> I do not see how one can have a more satisfying ideal of the admirable than the development of Reason so understood. The one thing whose admirableness is not due to an ulterior reason is Reason itself comprehended in all its fullness. (1978: CP 1.615)

Offhand, reasonableness does not seem as intuitive as an ultimate end compared with Aristotle's candidate of happiness (Aristotle 1984: 1095a16) or Mill's nomination of pleasure (1957: 4). Who does not want to be happy or have a pleasurable life? But reasonableness does not stand out as an obvious choice. Questions about the candidacy of reasonableness are compounded by the fact that Peirce gives very little clarification about its meaning. However, if reasonableness is considered as a cover term for all of the features of self-correction, then it can be understood more intuitively. Consider the following explanation that may bring out the intuition.

The postulates of self-correction, intergenerational altruism, and the sort of reasoning that's good at detecting and correcting error all aim at improvement – meliorism. The doctrine of meliorism, in turn, may solve the anomaly of seeing a process as an end rather than a means to an end (Kent 1976: 270). Seeking improvement can be understood more intuitively as an end. Even if there is disagreement about what makes for an improvement who, but the lowest run of humanity, does not desire to make things better? Thus, improvement is a process that can also count as an end, and it is an end at least as intuitive as happiness or pleasure. It also shows why the ends of pleasure, peace, and prosperity are subordinate to this higher end, since improvement, generally, means improvement in these areas as well. Under the assumption that "reasonableness" is used by Peirce as a cover term for all of inquiry's normative features, then it makes sense to declare it to be the highest end.

Reasonableness gives direction not only to how individuals should live, but how practices and artifacts should be designed. In Peirce's terms, understanding the manner in which "the practical facts" of a concept or judgment "can subserve to further the development of concrete reasonableness" achieves a higher grade of meaning than even the third grade of meaning associated with the older version of

the pragmatic maxim (the so-called "fourth grade" of meaning) (1978: CP 5.3). The ideal reasonable person acts on the practical postulates of self-correction, is motivated to make things better, and employs methods of reasoning most likely to correct error, while abiding by norms that are most likely to engender cooperation with others in making things better. Analogously, practices are reasonable to the extent that their design facilitates such an ethos and their governance structures foster self-correction. Although not perfectly aligned with the ethos of improvement toward good ends through self-correction, the practice of science and medicine certainly illustrate this in the main. In his more speculative moments, Peirce even goes further to argue that reasonableness is a feature of the order of nature itself (1978: CP 6.547: CP 7.687).

Of course, Peirce recognized that just as people might not follow the counsel of Aristotle to adopt virtue as the road to happiness, they may not heed the call of reasonableness. In fact, in "The Fixation of Belief," Peirce recognizes the pervasiveness of *unreasonableness*. People tend to adopt beliefs that are comforting, fulfill some need or interest, even if they are false. They work to establish defenses against beliefs or ideas that might challenge their own (1978: CP 5.377). They are happy to believe whatever is pronounced by some authority if it legitimates their beliefs. Peirce thought much of society operates on the basis of authority or conformity to custom or popular opinion (1978: CP 5.379). Peirce's account of unreasonableness has been proven in many ways, especially in the form of the intertwining of cognitive dissonance and confirmation bias (Festinger 1962; Mercier and Sperber 2017: 2011–221). Fortunately, history demonstrates that beliefs do change, and change so as to correct previous errors, leading to some improvement in the human condition.

8 Conclusions

By the time of the Harvard Lectures, Peirce had realized the importance of, first, understanding the normative character of logico-scientific reasoning and, second, its dependence, therefore, on the sciences of ethics and esthetics. This particularly applied to his pragmatic maxim, since indications are that he recognized it as leading to amorally instrumental directives for conduct. To address this problem, he adopted the strategy of Aristotle rather than Kant, aiming to disclose an ultimate end, a *summum bonum*, that could anchor the normative direction of the sciences. Whatever was conducive to that end served as a moral compass. He promoted reasonableness as a candidate end, understood as a process of self-correction, embedded in the normative features of communities of inquiry that led to

improvement precisely through self-correction. Thus, reasonableness is a process which is also an end-in-itself, since it results in ongoing improvement over time.

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