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# **Peirce and Naturalism**

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**Abstract.**— Charles Sanders Peirce offers in “The Fixation of Belief”, an argument for naturalism; he argues that the scientific method is the proper method of inquiry. I argue in part I, that this argument is seriously flawed. Naturalism must hold that logic whatever else it is, is not in a position to gainsay the conclusions of the scientist. In part II, I argue that Peirce was sympathetic to this view of the relation between logic and science though he did make exceptions. Finally, I develop a suggestion of Peirce into a strong argument for one aspect of naturalism: Logic can never justify general laws which would enable the logician to gainsay the epistemic claims of the scientist.

While the name of Charles Sanders Peirce is far more closely associated with pragmatism than with naturalism, it is relatively uncontroversial that there is a strong naturalistic strain in his writings. I would ask that the term ‘naturalism’ be understood here, as well as throughout the rest of this paper, in the sense it has come to have in the works of W.V. Quine. Naturalism is

Abandonment of the goal of first philosophy. It sees natural science as an inquiry into reality, fallible and corrigible but not answerable to any supra-scientific tribunal, and not in need of any justification beyond observation and the hypothetico-deductive method. [Quine 1981, 72]

I am sympathetic to naturalism and am interested in arguments for it. Such arguments are difficult to find, however. Most naturalists seem to regard naturalism as common sense, an article of faith and sometimes even, albeit perhaps inconsistently, as a self-evident truth. Peirce, however, has given us an argument that the proper method of fixing belief is the scientific method. Unfortunately, I think that the argument is seriously flawed. I point out the flaw in the first part of the paper. In the second part, I follow up on some of Peirce’s observations as to the relation between logic and mathematics to develop a fairly strong argument for naturalism.

## I.

It is in “The Fixation of Belief” [*Collected Papers*, 5.223-247] that Peirce argues for the conclusion that the scientific method is the proper method for fixing belief. The argument will be familiar to many of you. After arguing that the goal of inquiry is the fixation of belief, as opposed to the fixation of true belief, Peirce describes four methods of inquiry that have been used. The scientific method is argued to be superior to the others in that belief will be more firmly fixed by a member of a community which uses the scientific method than by a member of a community which uses any of the other three methods. This, at least, is what he should have argued. The argument

is interesting to the naturalist not only for its naturalistic conclusion but also because of the naturalistic terms in which it is expressed. Psychological terms, 'belief' and 'doubt' occur when we might expect epistemic terms, such as 'knowledge' or 'evidence'. The proper or best method of fixing belief is simply the method which fixes belief most efficiently, which fixes it in such a way that it stays fixed. The goal of inquiry, the fixation of belief, is merely to do away with the irritation of doubt; to put to an end that unpleasant state of mind.

The problem I find with the argument is that in it Peirce affirms, and apparently for his purposes needs to affirm, a pair of contradictory propositions. First, he emphasizes the point that we cannot seek the truth.

The sole object of inquiry is the settlement of opinion. We may fancy that this is not enough for us, and that we seek, not merely an opinion, but a true opinion. But put this fancy to the test and it proves groundless. [*Collected Papers*, 5.375]

Peirce offers two arguments for this conclusion both of which, as best as I can tell, amount to the following line of thought. When we are seeking an answer to a question we stop investigating, we are satisfied, when we believe we have the correct answer to the question, whether or not that answer is in fact correct. The object of a desire is what would satisfy it, and desires are individuated by what would extinguish them or what would satisfy them.<sup>1</sup> Thus, we do not and cannot desire the truth. We cannot desire that our doubts be resolved by the acquisition of true beliefs.

But this very point is explicitly contradicted at the end of the article. After pointing out that the first three methods he discusses do have some advantages over the scientific method, Peirce tells us what it is about the scientific method that should sway us decisively in favor of it.

A man [...] should consider that, after all, he wishes his opinions to coincide with the fact, and that there is no reason why the results of those three first methods should do so. [*Collected Papers*, 5.387]

And again,

The person who confesses that there is such a thing as truth, which

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1 It is far from obvious that this is true. Suppose I seek (desire) a Picasso painting. I find and buy a fake Picasso which I believe to be genuine. I stop seeking. I no longer say or believe that I want a Picasso. But when I discover that what I have is a fake I have, it seems to me, discovered that I did not get what I sought or wanted.

is distinguished from falsehood simply by this, that if acted on it should, on full consideration, carry us to the point we aim at and not astray, and then though convinced of this dares not know the truth and seeks to avoid it, is in a sorry state of mind indeed. [*ibid.*]

An explicit contradiction may or may not be harmful to the line of thought in which it is found. One of the sentences contributing to the contradiction might not be essential to the line of argument. Should Peirce have allowed his argument to rest on the claim that the scientific method is superior to the others in fixing belief alone? Should he have refrained from praising the scientific method on the grounds that it has the ability to lead us to the truth? I think not. It would have been very difficult, if not impossible, for him to argue for the superiority of the scientific method had he ignored the argument that the scientific method is most likely to give us the truth. For, as Peirce himself points out, there are many types of doubt, which we simply do not know how to resolve by means of the scientific method: doubts concerning ethical, aesthetic, religious and even metaphysical matters for example. None of the other methods are restricted in this way to a particular subject matter. Furthermore, the method is time consuming which causes doubts to pile up while trying to rid ourselves of one or two. The tools required for using the scientific method are often expensive. Much time is required to learn how to use it. In all of these respects, the other methods of inquiry mentioned by Peirce are far superior. As an efficient reliever of doubt, the scientific method leaves much to be desired. We must be able to appeal to features of the scientific method other than its capacity to resolve doubt if we are going to recommend it.

Should Peirce, then, have allowed that we *can* seek and desire a true opinion or even perhaps a supported or justified true opinion? Having granted this perhaps he could then continue to argue that the scientific method is superior to all others in yielding such opinions.

Had Peirce followed this plan, there would be little left of the original article. More importantly for my purposes, it would have been difficult to argue this way without giving up naturalism. This is not obvious, so let me explain.

When one is told that naturalism is the view that there is no first philosophy one thinks, and rightly so, that naturalism claims that there is no such thing as metaphysics. But epistemology too, as it is usually understood, presents itself as a first philosophy, whether or not it intends to do so. For suppose epistemology had achieved its goals. Suppose, that is, that we knew the answers to the questions, “*What is knowledge?*” and “*What is it to be justified in believing something?*” Armed with this knowledge we might apply it to specific claims made by those in the special sciences. The result

might be that we thereby discover that the scientist is not, as he believes, justified in believing his theory. This conclusion should, if taken seriously, have important consequences within the science in question. To view epistemology in this way is to view it as a first philosophy.

Peirce concludes from the fact that truth is not a goal of inquiry that we cannot raise the question, out of the blue as it were, as to whether or not a specific belief we do have is something we ought to have; in *lieu* of some stimulus to doubt a given belief, we cannot ask ourselves whether or not it is a well argued, well fixed, supported belief, to use some of Peirce's alternatives to our term, 'justified'.

An inquiry to have that completely satisfactory result called demonstration has only to start with propositions perfectly free from all actual doubt. If the premises are not in fact doubted at all, they cannot be more satisfactory than they are. When doubt ceases, mental action on the subject comes to an end; and, if it did go on, it would be without a purpose. [Collected Papers, 5.376]<sup>2</sup>

That these are indeed consequences of the view that truth cannot be a goal of inquiry is plausible. For justified or supported beliefs are those beliefs that are more likely to be true than those that are not supported. Should I discover that I do not and cannot have true beliefs as a goal, I must realize that I have no desire to have supported or justified beliefs as a goal either. Indeed, the arguments Peirce uses to show that true beliefs cannot be a goal of inquiry would work just as well (or just as poorly) to show that supported or justified beliefs cannot be a goal of inquiry either.

If truth cannot be a goal of inquiry, then there is no way to test beliefs as to degree of justification or support. If there is not general way to test beliefs as to degree of justification, there is no first philosophy in the form of what we call epistemology. Furthermore, if truth *were* a goal of inquiry and if there *were* an argument for the claim that the scientific method is the best method for attaining this goal, that argument would be contained within epistemology, a first philosophy. Had Peirce allowed that truth is a goal of inquiry, he would have had to assume that there is a first philosophy to argue that the proper method for finding the truth is the scientific method. The

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2 To see how deep the contradiction runs compare these two quotations with the following from the end of the article: "*The force of habit will sometimes cause a man to hold on to old beliefs, after he is in a condition to see that they have no sound basis. But reflection on the state of the case will overcome these habits and he ought to allow reflection its full weight.*" [Collected Papers 5.387]

beauty of the line of argument in *The Fixation of Belief* is that it argues for what is a psychological conclusion in psychological terms while maintaining that any attempt to argue for the superiority of the scientific method in other terms is incoherent.

I conclude that the argument is seriously flawed. The contradiction cannot be easily avoided. We need to claim that the scientific method leads to truth and thus justified belief to explain why the scientific method is to be preferred. But then it becomes difficult to see how one might argue in purely psychological terms, or any scientific terms for that matter, that the scientific method is the best method for satisfying our desire for true beliefs.

## II.

Though the term *logic* was variously defined by Peirce he consistently used it to encompass what we would call the philosophy of science, epistemology and parts of the philosophy of language as well as logic proper. Its ultimate goal is to provide ways of distinguishing good reasoning from bad, good arguments from bad. I argued that the naturalist cannot look at epistemology as a first philosophy, as capable of rationally gainsaying the pronouncements of the special scientist. Here I will argue that Peirce's attitude to the relation between mathematics and logic is that of the naturalist and that his view as to the relation between the special sciences and logic is close to that of the naturalist. Finally, I present an argument suggested by Peirce for the claim that epistemology can never be in a position to gainsay the special sciences.

First, let me turn to some preliminary matters. It might be thought that since the subject matter of logic, understood as the science of good reasoning, and the subject matters of the special sciences are different there is no opportunity for disagreement. Strictly speaking this is true. It is only the results of an application of logic to the arguments in the special sciences which may conflict with epistemic judgments of the special scientist. I will assume here that it falls within the purview of the special scientist to make epistemic claims; claims to the effect, for example, that he is justified in believing this or that. So, when the special scientist claims that he has a justified or well reasoned belief that *p*, he is making a pronouncement which the logician may be in a position to evaluate. To further clarify how I see the epistemologist on the one hand and the scientists on the other to be related to such epistemic claims let me distinguish between what I will call an 'analytic argument for an epistemic claim' on the one hand and an 'ostensive argument for an epistemic claim' on the other. The analytic arguments are deductive arguments used within applied epistemology. The applied

epistemologist has an analysis of 'reasoned opinion', let's say, and applies that analysis to specific claims of specific people to conclude that the person does or does not have a reasoned opinion to this or that effect. Analytic arguments will always contain an epistemic principle. An example of an analytic argument is, "*A person has a reasoned opinion if and only if he has a sound argument for it. I have a sound argument for the claim that Socrates is mortal. So, I have a reasoned opinion that Socrates is mortal.*" On the other hand, an ostensive argument for a first person affirmative epistemic claim is an argument whose premises state the individuals reasons for believing the very thing that the conclusion claims is a reasoned belief. They are not, in general, deductive. Examples of ostensive arguments might be, "*All men are mortal and Socrates is a man. So, I have a reasoned belief that Socrates is a man*" or "*I see dark clouds off to the West. So, I have a reasoned belief that it will rain soon.*" Such arguments show the audience that the speaker has a reasoned belief. As I might show you that I have nothing in my pocket by turning it inside out, so too, by relying on your ability to recognize good reasoning when you are confronted with it, I can show you that I have a reasoned belief by stating my reasons. The question is, can analytic arguments for epistemic claims call into question the conclusions of the ostensive arguments?

Peirce states explicitly that we need not know logic to reason well.

Just as it is not necessary in order to talk, to understand the theory of the formation of vowel sounds, so it is not necessary, in order to reason, to be in possession of the theory of reasoning. [*Collected Papers*, 4.242]

Furthermore, we do not need to know logic to recognize good reasoning as such when we are confronted with it. In response to an argument that logic cannot be rationally argued since we can't know what is rational until it is finished, Peirce responds:

What pedantry! So a man is not allowed to see what is reasonable unless he does so by the rules of art [*Collected Papers*, 2.195].

Peirce recognizes, it seems, what I have called 'ostensive arguments for epistemic claims'. The question is, can the logician *ever* contradict, reasonably, epistemic claims made in the special sciences by the special scientist.

As for the special science, mathematics, Peirce is again explicit and the answer is, "*No*".

There is no more satisfactory way of assuring ourselves of anything than the mathematical way of assuring ourselves of mathematical

theorems. Then let us not pretend to doubt mathematical demonstrations of mathematical propositions so long as they are not open to mathematical criticism and have been submitted to sufficient examination and revision. The only concern that logic has with this sort of reasoning is to describe it. [*Collected Papers*, 2.192].

Logic cannot evaluate mathematical arguments because those arguments are more evident than the theory of those arguments could be [*Collected Papers*, 2.120]. Generalizations describing mathematical reasoning must not be seen as laws, as standards that such reasoning must live up to be good reasoning. In fact, should mathematicians come to accept an argument deemed bad reasoning by any logic, it is the logic that would need revision, not the thinking of the mathematician.

Peirce claims that other special sciences are dependent on logic, however, though often he explains the dependence as a weak one. "The highest and greatest value of logic is that it affords us an understanding of the process of reasoning" [*Collected Papers*, 2.6], rather than its utility in its application to the special sciences. The theory of reasoning is most likely to be helpful, "*in extraordinary and unusual problems [...] where conclusions are not readily checked by experience and where our instinctive reasoning power begins to lose its self-confidence*" [*Collected Papers*, 2.4]. He thinks it would be less of an error to claim that, "*no science stands in need of logic, since our rational power of reason is enough*" [*Collected Papers*, 4.242] than to claim that mathematics does stand in need of it. None the less, Peirce clearly thinks that the goal of logic is to be in a position of evaluating arguments and reasoning presented within the special sciences [*Collected Papers*, 4.242-243].

There is a passage, however, which calls into question the reasonability of this view and can be developed into a strong argument against it. In explaining why logic itself is one of five sciences which is not dependent upon logic, Peirce writes,

One of the five is Logic itself, which must contrive, by hook or crook, to work out its own salvation without a pre-acquaintance with its own discoveries, but which, like any other science, will lay one stone upon another in the erection of its doctrine [*Collected Papers*, 2.120].

What is puzzling about this passage is that it *explicitly* places logic on the same epistemic footing as the special sciences. Each uses our native ability to distinguish good from bad reasoning to develop its theories. Why, then, should we trust to the opinion of the logician or epistemologist should there be a disagreement along the lines described above. In fact, one might argue that the special scientist's

opinion is to be preferred because he is not relying on a theory. The theory of the logician is in the end supported by judgments of exactly the same epistemic status as those which support the theory it is being used to criticize.

I think a little further reflection will reveal that logic or epistemology cannot evaluate the claims of the special scientist. Suppose that logic has reached its goal of discovering the nature of, e.g., reasonable opinion. Let us imagine that it asserts a general proposition of the form,

L: S has the reasonable opinion that p if and only if FSp.

Now for any instance of L, there is at least one opinion which I cannot use that instance of L to evaluate; namely, the opinion that the instance of L itself is for me a reasonable opinion. For, consider the following argument which I will call N, the first premise of which is an instance of L.

S has a reasonable opinion that p if and only if S has a clear and distinct idea that p. I have a clear and distinct idea that the premise written above is true. So, I have a reasonable opinion that S has a reasonable opinion that p if and only if S has a clear and distinct idea that p.

There is something wrong with this argument. There would remain something wrong with this argument even if we assumed that its author was completely justified in believing its two premises. This argument, even under those conditions, would in some sense or other beg the question. I beg the question if I assume an instance of L as a premise in an argument for the conclusion that this premise is for me a reasonable opinion. I will support this claim below. Now if we cannot use arguments like N to evaluate claims to the effect that one holds an instance of L as a reasonable opinion, then the instances of L themselves are not laws. For there will always be one opinion the reasonableness of which does not depend on its satisfying the theory of reasonableness encompassed in that instance of L. Let me explain.

Consider the following analogy. Suppose I had a vial of some liquid and I convinced you that this liquid could not be shown to be or not to be water by discovering whether or not it is  $H_2O$ . Should I convince you of this I would have convinced you that the sentence "*water is a swarm of  $H_2O$  molecules*" is not a law. For if it were a law, we could conclude from it that if the stuff in the vial were  $H_2O$  it would be water and if it were not it would not be water. Now I claim to have shown that for any instance of L there will be an opinion whose reasonableness does not depend upon the opinion's satisfying the analysis in question. This opinion is what corresponds in the analogy to the vial of liquid. It is the opinion that the analysis itself

is correct. The reasonableness of this opinion can't depend on its satisfying the condition for reasonableness stated in L because if it did arguments like N would be perfectly acceptable.

It is sometimes claimed that one feature that distinguishes laws or lawlike sentences from accidental generalizations is that laws support corresponding counterfactual or subjunctive conditionals while accidental generalizations do not. For example, the law, "*Metals expand when heated*", supports the claims, "*If I had heated this metal key yesterday, it would have expanded*" and "*Were I to heat this metal key, it would expand*". On the other hand, the accidental generalization, "*All of the keys on my key ring are made of copper*" does not support the claims, "*If this steel key had been on my key ring yesterday, it would have been made of copper*" or, "*Were I to put this key on my key ring, it would be made of copper*". The point I have tried to make in the last paragraph is that no instance of L is a law because there is one relevant counterfactual conditional sentence that it does not support: namely, the claim that the instance of L itself would have been for me a reasonable belief if I had satisfied the condition stated in its defining clause.

I have claimed that the first premise of argument N begs the question. It is obvious that something is wrong with it. If I believed the analysis which this premise expresses but had my doubts about whether or not my belief was reasonable, my doubts should not be resolved by N. Yet, N does not beg the question in any sense with which I am familiar. It is not as though the argument contains a premise which no rational person would accept without also (or already) accepting its conclusion. A person might well believe the first premise and have her doubts about being justified in believing it. We frequently believe things which we are not at all sure we are justified in believing. It is equally clear that the second premise of N fails to beg the question in this sense, the premise, that is, that "*I have a clear and distinct idea that the first premise is true*". In what sense, then, does N beg the question? If my interest in an argument is to become rationally convinced or justified in believing its conclusion, I can legitimately assert as a premise only statements which I believe myself to be justified in believing. Now N contains a premise that no rational person would assert *as a premise in that argument* unless he already believed the conclusion of N. I cannot see my assertion of the first premise as legitimately asserted here without seeing that premise as one of my reasonable opinions and that is to say that I cannot see it as legitimately asserted without believing the conclusion of N to be true. For the conclusion of N states that the first premise is one of my reasonable opinions. Arguments which contain premises that a rational person would not use as a premise unless he already believed that conclusion to be true cannot rationally convince

or justify their authors in believing their conclusions. In taking the liberty of asserting the first premise of N, I have begged the question at issue in N, namely, “*Is the analysis one of my reasonable opinions?*”

My argument can be put loosely, but perhaps more intelligibly, in the Platonic terminology of ‘standards’. A standard of F-ness can in principle be used to evaluate claims of the form, “*x is F*”. However, one claim that a standard of reasonability cannot even in principle be used to evaluate is the claim that the standard itself is reasonable. For to use it in this way would be to beg the question. But a purported standard of reasonability which cannot, even in principle, be used to evaluate all claims to the effect that an opinion is reasonable is no standard at all. Thus, there is no standard of reasonability.

The argument put less loosely but probably less intelligibly goes as follows. I cannot legitimately appeal to any purported analysis of ‘reasonable belief’ in order to support a claim that my belief that that analysis is correct is a reasonable belief. For to do so, would be to beg the question at issue. But if the purported analysis were a genuine analysis, a lawlike sentence, then one could appeal to it to justify any claim to the effect that one has a reasonable belief. So, there is no analysis of reasonable belief.<sup>3</sup>

Epistemology can *describe* the practices of the special sciences and to this extent it can contribute to an understanding of the practice. It can offer suggestions as to how to proceed and point to common mistakes, discovered as such within the sciences. What it seems logic cannot do is present itself as first philosophy, as being in a position of gainsaying the epistemic claims of the special scientist when they claim that they have reasonable opinions within their field. There is no first philosophy in the form of epistemology.

## References

Ketchum, R.J.

- 1991      The Paradox of Epistemology: A Defense of Naturalism, *Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition*, LXII, 1, 45-66.

Peirce, C.S.

- 1877      The Fixation of Belief, in C. Hartshorne and P. Weiss (Eds.), *Collected Papers of Charles Sanders Peirce*, Vol. V, Cambridge Mass : Belknap Press, 1960.

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3 For a more complete discussion of this argument as well as its consequences for naturalism, see [Ketchum1991].

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- 1902 Minute Logic, in C. Hartshorne and P. Weiss (Eds.), *Collected Papers of Charles Sanders Peirce*, Vols. II and IV, Cambridge Mass : Belknap Press, 1960; Vol. II, 3-125; Vol. IV, 189-262.
- Quine, W.V.O.  
1981 Five Milestones of Empiricism, in : *Theories and Things* Cambridge Mass : Belknap Press, 67-72.