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Serving Two Masters: Peirce on Pure Science, Useless Things, and Practical Applications

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1. Introduction¹

During his long but often troubled intellectual life, Charles S. Peirce said some *prima facie* incompatible things about the relationship between theory and practice. In his energetic early pragmatism, abstract science was construed as an outcome of the natural striving to escape doubt – to establish pragmatically and socially fitting belief – with no definite line drawn between theory and practice as modes of life. But in his Cambridge Conferences lectures of 1898 (RLT), theoretical science was explicitly separated from vital matters, leading to an almost Platonic view of scientific philosophy as Pure Theory. At the same time, Peirce denounced all aspirations to application in genuine heuritic science – that is, the kind of inquiry engaged in the undiluted search for truth.²

In this article, I will review the principal motivations and arguments underpinning Peirce’s seemingly clashing stances. The inconsistencies, while not quite as devastating as they may at first blush appear, are nonetheless real and consequential; even the most sympathetic interpreter can

¹ The research underlying this article has been financially supported by the Ella and Georg Ehrnrooth Foundation and the Academy of Finland. I also thank Henrik Rydenfelt for his insightful – and eminently applicable – comments on an earlier version of the paper.

² In his mature classification of the sciences, Peirce recognizes three broad groups of heuritic inquiry: mathematics, philosophy, and special science (the last including both “physical” and “psychical” branches).

hardly avoid recognizing some degree of tension in Peirce's oeuvre with regard to the issue of the theory/practice relationship. Nor do I think that the discrepancy can be simply solved with appeal to biographical arguments or dismissed as a matter of correcting earlier errors, as the writings from Peirce's final phases do not satisfactorily settle the matter. If his early account basically glosses over the potential problem, his later position would – at least if his rather polemical assertions were taken seriously – isolate the philosopher from practice in a rather un-pragmatic fashion. Yet, Peirce manifestly continues to adhere to the most basic tenets of pragmatism, even as his own position is specified and demarcated as *pragmaticism*.

However, I will also argue that Peirce's mature philosophy contains certain elements that may allow us to avoid both ivory-tower idealism and base utilitarianism. In particular, I will contend that a balanced reconstruction of Peirce's approach should embrace a conception of philosophy that on the one hand does not succumb to short-term demands for applicability, but which on the other hand fully recognizes the value of considering *possible* applications of abstract ideas – not merely as a secondary stage to be left in the hands of more practical inquirers and engineers, but as a substantial component in theoretical investigation itself.

2. The practical roots of scientific inquiry

Peirce presents the classic pragmatistic perspective on the relationship between theory and practice in the seminal articles 'The Fixation of Belief' (1877) and 'How to Make Our Ideas Clear' (1878). The basic idea is deceptively simple. Peirce contends that human beings normally possess a set of more or less coherent beliefs. A belief can be defined as a readiness to take action, were the suitable occasion to arise; if we believe something, then we are prepared to act on that belief, although we do not need to be fully aware of the inclination and its potential consequences. At any rate, the feeling of believing something can be taken as a more or less certain indication that a *habit of action* has been established in our nature (W 3:247 [1877]).

If our habits always would work faultlessly, there would be no incentive to inquire; in fact, there would hardly be any need for advanced thought. We would, like the other animals, cope mainly with our innate habits or dispositions, or never question the patterns of action inherited from previous generations. The principal part of our conduct is arguably of this broadly instinctual or commonsensical kind. Yet, human beings

obviously do encounter surprises, resistances, and disappointments, and react upon them differently than other animals tend to do. We become painfully aware of the fact that nature refuses to bow to our will; we meet people who hold different opinions and beliefs. Such occasions lead to what Peirce denotes as *doubt*. When in doubt, we recognize the fallibility of our beliefs, and indeed become aware of them *as* habitual beliefs.

It is only at this stage that the mutability of habits becomes an actual issue. Although most – if not all – habits are continuously self-adapting (that is, adjusting without the cognizant input of an agent), the consciousness of error and dysfunction introduces the possibility of a higher level of potential intelligent transformation. Admittedly, this issue is complicated by Peirce's liberal usage of the term "habit". At times, the concept seems to be limited to the determined aspect of human conduct (see, e.g., CP 6.300 [1893]), apparently to be distinguished from the plastic capacity of habit-losing and habit-taking that characterizes intelligence (see, e.g., CP 6.613 [1893]); but on other occasions, he uses "habit" to denote a broader, more dynamic principle operative in all of nature.³ In the latter acceptance, the term is in danger of being so indiscriminately applicable – with humans, other animals, plants, rivers, galaxies, and sub-atomic particles all involved in the same nebulous process of habituation – that it all but loses its pragmatic import. This terminological confusion is at least partly clarified by a distinction that Peirce introduces in his later writings: in the broader sense, "habit" "denotes such a specialization, original or acquired, of the nature of a man, or an animal, or a vine, or a crystallizable chemical substance, or anything else, that he or it will behave, or always tend to behave, in a way describable in general terms upon every occasion (or upon a considerable proportion of the occasions) that may present itself of a generally describable character", while the narrower and more proper acceptance entails a distinction between *acquired habit* and natural disposition (CP 5.538 [c. 1902]). In this respect, a differentiating mark of a human being may be the comparatively large amount of acquired habits (habit in the narrow sense) among our habits (in the broad sense that also includes dispositions). But this division between the human and the non-human is not

³ In view of the anti-determinist metaphysics that Peirce begins to develop in the 1880s, it might be most appropriate to assert that he takes all habits (including natural laws) to be mutable in principle – or, in other words, to be more or less of the character of "mind". This would accord with his controversial thesis that the "one intelligible theory of the universe is that of objective idealism, that matter is effete mind, inveterate habits becoming physical laws" (CP 6.25 [1891]).

absolute; arguably, many different kinds of creatures possess at least the rudiments of the central capacity needed for genuine habit-transformation: the ability to learn from experience, that is, the defining competence of a “scientific intelligence” (cf. CP 2.227 [c. 1897]). Awareness of belief *as* belief is perhaps at this moment in time a uniquely human characteristic; but from an evolutionary point of view, there is no justification for assuming that this would be a permanent state of affairs.

Be that as it may, we can, to simplify matters, treat belief and doubt as facets of human conduct; like consciousness of belief is a characteristic of developed “scientific” intelligence in action, so is its inevitable companion, doubt. In other words, doubt and belief are both related to acting in a broad sense, but in different ways. A belief, or rather the underlying habit, could lead to action in certain situations; it is real, even if it is not constantly actualized. Doubt, on the other hand, functions as a direct incitement to action. There is a gap in the normal pattern of behaviour, and this practically requires the agent to take measures. In a sense, doubt is a mark of dysfunction or error – that is, of the failure of established habits to operate smoothly in a certain field of experience and practice. The feeling of irritation, which accompanies doubt, leads to a struggle to achieve a new state of belief. This effort is *inquiry* (w 3:247 [1877]). It is always concerned with a limited part of our beliefs, never with our entire web of beliefs. While any habit – or at least any acquired habit – may be doubted, all-out doubt would entail total paralysis. It is not pragmatically feasible.

Understood as a process that carries us from doubt to belief, inquiry is an everyday phenomenon. In fact, Peirce straightforwardly contends that “the settlement of opinion is the sole end of inquiry” (w 3:248 [1878]). Does this mean that there is no heurctic research, even of a mathematical or philosophical kind, unless we first encounter surprises and resistance? Yes, for if “we did not struggle against doubt, we should not seek the truth” (CP 2:84 [c. 1902]). But the doubt that brings forth inquiry must be genuine. It is not sufficient to say or write that one doubts; “paper doubt” does not amount to legitimate disbelief. Here, Peirce is particularly targeting philosophers, who seem to be plagued by an almost compulsive proclivity for “doubting” things that no one really disbelieves. According to Peirce’s commonsensist stance, we should “not pretend to doubt in philosophy what we do not doubt in our hearts” (w 2:212 [1868]).

However, this maxim does not prevent us from performing thought experiments concerning situations in which we do not actually find ourselves. Peirce gives a humdrum example; if one sits at a railway station

and waits for a train, one can examine advertisements and schedules, and as an intellectual exercise try to figure out how it would be best to get from town A to town B – even if one is not planning to make such a trip (W 3:262 [1878]). This process involves a real uncertainty concerning the best path of action and a genuine attempt to establish how it would be reasonable to behave. Such a play of thought can establish a habit of action; in fact, Peirce indicates that this kind of imaginary experiment exemplifies the basic model of scientific and philosophical investigation. It is a rudimentary piece of research, a controlled process of reasoning executed with the assistance of mental diagrams (cf. CP 2.227 [c. 1897]).

But could not almost any artificial doubt be defended on the grounds that it can produce habits that might prove to be valuable in the future (cf. Haack, 1983)? This is a complex problem; here, it suffices to emphasize that a doubt-inducing thought experiment is acceptable as long as it relates to a potentially consequential question within a particular line of inquiry. The cause and setting may be imaginary and diagrammatic, but at least outside of the purely hypothetical domain of mathematics, the generated doubt – however mundane it may be – must possess a connection to possible experience and action.⁴ Thus, if we do not genuinely distrust the reality of the external world or the fact that two people are able to communicate with each other, then there is nothing to be gained by a wholesale philosophical programme of methodical scepticism that involves extreme requirements of certainty and precision. To put it in very simple pragmatist terms: habits that actually could guide our actions ought to always prevail over feigned disbelief in experiential science, even in philosophy. At best, paper doubts are distractions that indirectly obstruct inquiry; at worst, they may lead to a futile loss of the ability to act. As Peirce later observes in a letter to Victoria Lady Welby, useless doubts are actually “worse than useless” (ss 141 [1911]).

Although I have merely outlined a part of the argument in the early pragmatist writings, it should be clear that they exhibit certain naturalistic leanings. “Higher” cognitive activities, such as conscious thought and science, build on the interaction between the basic natural states of doubt and belief. There is a vital connection between reasoning and action; the goal of controlled thought is to create the conditions for successful conduct,

⁴ In an attenuated sense, mathematics can be said to involve experiential consequences of an ideal or diagrammatic kind, related to obstacles and surprises mathematical theorizing produces. But in his mature phase, Peirce does not typically classify mathematics as an experiential or positive science.

that is, beliefs and habits of action that help us to avoid surprise and doubt (cf. W 3:263 [1878]). In this sense, it would appear that reflection serves action; it is not clear whether it possesses any value in itself, as “pure” theory or speculation.

Furthermore, there is a connection between everyday practical problems and their solutions, on the one hand, and scientific and theoretical activity, on the other. In both cases, it is a matter of fixating beliefs and opinions. Of course, we are talking about different levels of activity, but the dynamics is the same. While science naturally evolves into a quest for general truth, culminating in abstract mathematics, the pragmatist turn can be construed as a reminder of the practical heredity and liability of theory. From this point of view, the pragmatic maxim is not merely a method of conceptual clarification, but also a commonsensical check on the human tendency to abstraction – which, especially if combined with rhetorical or stylistic flair, can produce elegant but ultimately empty theoretical constructs in philosophy.

3. Philosophy without passion

Based on the early pragmatistic writings, one is tempted to infer that Peirce wishes to collapse the traditional dichotomy between theory and practice (cf. Niklas, 1988). In this account, inquiry is intimately connected to action, and theoretical science appears to be explicable as a product of natural processes of doubt and belief-fixation. Science may not be straightforwardly reducible to such elements, but nor is it independent of the pragmatic field of practical existence. However, especially in the lectures of 1898, we find Peirce advocating a very different approach. In this context, Peirce supports the separation of theory and practice as two modes of life, wishes to defend the autonomy of scientific inquiry, and argues that conservatism is the appropriate attitude in morals and non-scientific social affairs. This is a Peirce who declares that “the two masters, *theory* and *practice*, you cannot serve” (RLT 113 [1898]).⁵

At first, it might seem that Peirce’s advocacy of such a surprisingly sharp dualism between the theoretical and practical is simply motivated by his wish to protect scientific inquiry from outside pressures – an effort to defend the autonomy of science from moralists who would stipulate that

⁵ The allusion is of course Biblical: “No man can serve two masters: for either he will hate the one, and love the other; or else he will hold to the one, and despise the other. Ye cannot serve God and mammon.” (Matt. 6:24.)

the scientist must not offend traditional mores as well as from the kind of utilitarians who would demand that the scientist must legitimize his or her activity by producing technological applications or socially useful results.⁶ The truly scientific inquirer is allegedly not concerned with the actual consequences or utility of his or her activities; even in sciences with obvious applicability, such as chemistry, the genuine investigator simply loses sight of the practical aspect (RLT 107 [1898]).

True science is distinctively the study of useless things. For the useful things will get studied without the aid of scientific men. To employ these rare minds on such work is like running a steam engine by burning diamonds.

CP 1.76 [c. 1896]

This is a picture of the idealized scientist as a self-sacrificing truth-seeker. Peirce is in effect attempting to delimit a social domain, identified as “Theory” or “Science”, within which the true heuritic inquirer would be allowed to engage in open speculation and the free formulation of hypotheses without being weighed down by the baser concerns of the world of “Practice” – a broad category that seems to encompass traditional morality and sentiment as well as technological application and social reforms. It amounts to an emphatic defence of the autonomy of heuritic science. However, while Peirce’s contention that “to distinguish between speculative and practical opinions is the mark of the most cultivated intellects” (CP 1.50 [c. 1896]) may seem rather innocuous in spite of its somewhat elitist overtones, it is not immediately clear how he manages to reconcile the theory/practice split with the naturalistic framework in which inquiry – and by extension, science – purportedly emerges from practice.

In particular, the elevation of unadulterated theory seems to clash badly with the idea that the sole purpose of inquiry would be the fixation of belief. Peirce certainly seems to reject his own early pragmatistic stance when he declares that “pure science has nothing to do with belief” (CP 7.606

⁶ There is also a well-documented biographical reason for Peirce’s unusually testy tone in the 1898 lectures. Instructed by James to give talks on “vitaly important topics”, and to keep them “unmathematical” and “popular” (RLT 25), Peirce reacted by giving an opening lecture – popular in tone – about the lack of relevance of philosophy for the conduct of life. There is certainly more than a hint of sarcasm and vitriol in these talks. Thus, at least a part of the abnormally strong rhetoric might be dismissible as hyperbole. On the other hand, Peirce did advocate similar viewpoints when discussing theory and practice in other late writings; so even if one were to accept biographical explanations of philosophical positions, the stance of the 1898 lectures cannot be easily explained away as a mere anomaly. Peirce’s outburst could also be partially accounted for as a reaction to the utilitarian programmes of positivists and proponents of eugenics such as Karl Pearson.

[1903]; cf. RLT 112 [1898]). True, it is possible to qualify this blatant contradiction by introducing a clearer distinction between inquiry and science, in which the latter is taken to mean “institutionalized inquiry”; but the fact remains that Peirce comes close to shedding one of the most attractive features of his early account of science in his zeal to defend the purity of theory, as the belief-doubt model apparently now only pertains to pre-scientific inquiry and not to science in a more delimited sense of the term. Discontinuity between theory and practice replaces the continuum of habit, belief, and knowledge.

Such a major break in continuity can be taken as a sign that something is amiss, either in Peirce’s account or in our understanding of it, as he identifies *synechism* – “the doctrine that all that exists is continuous” (CP 1.172 [c. 1897]) – as the “keystone” of his system (CP 8.257 [1902]). He also characterizes the synechist principle as “a regulative principle of logic, prescribing what sort of hypothesis is fit to be entertained and examined” (CP 6.173 [1902]). Thus, a postulation of a discontinuity, like the one we seem to have at our hands, would fly in the face of one of the major guiding ideas of Peirce’s thought.

Some commentators (e.g., Colapietro, 2006) have argued that Peirce is not really imposing a strict partition of theory and practice; rather, theory should be construed as one kind of practice. Peirce certainly suggests as much when he states that “inquiry is only a particular kind of conduct” (MS 602:8). Then again, pure theory (or science) seems to function on an entirely different level than inquiry in the broad sense. Perhaps the doubt-belief model should be viewed merely as an attempt to explain how inquiry may have originated from everyday coping; but the end-product, heuristic science, should be seen as something that transcends its humble origins by not any longer being concerned with beliefs and habits as guides of action in weighty matters of ordinary life, but rather with theories that can be easily discarded.

pure science has nothing at all to do with *action*. The propositions it accepts, it merely writes in the list of premisses it proposes to use. Nothing is *vital* for science; nothing can be. Its accepted propositions, therefore, are but opinions at most; and the whole list is provisional. The scientific man is not in the least wedded to his conclusions. He risks nothing upon them. He stands ready to abandon one or all as soon as experience opposes them. RLT 112 [1898]

Here, Peirce makes a distinction between two degrees of belief; “full belief” denotes the readiness to act according to a proposition (of which we

need not have a clear conception) in vitally important circumstances, while “opinion” refers to a readiness to act in a similar way only in relatively inconsequential situations (RLT 112 [1898]). If we form or adopt a belief in practical life, it entails that we are really prepared to act in certain way in a possible situation. The proposition practically believed possesses a degree of vital relevance or meaning; we cannot simply *choose* to change our living beliefs. Consequently, Peirce claims that the scientist’s hypotheses and propositions are not beliefs in the strictest sense of the word. However, all beliefs – practical and theoretical alike – can be said to involve expectation and thus a reference to the future (Potter, 1996, p. 73).

What Peirce puts forward is a *segregationist* viewpoint, according to which “Theory” (i.e., primarily heuristic science) and “Practice” (i.e., tradition, morality, and sentiment) ought to be kept separate and not be allowed to intrude on each other’s turfs.⁷ Remarkably enough, it is philosophy that Peirce most stringently wishes to disengage from the sphere of Practice. Defining himself as an “Aristotelian” and a “scientific man”, he denounces “the Hellenic tendency to mingle Philosophy and Practice” (RLT 107 [1898]). Again, such comments can appear almost anti-pragmatic; but as in the case of science in general, Peirce has two reasons for proposing a partition of this kind. On the one hand, he wants to keep philosophy free from external demands. As a student of “useless things”, the philosopher should be free to entertain hypotheses that may violate existing moral norms and not be expected to prove the utility of his or her activity by producing applications. The utilitarian standpoint is rejected because it reduces science to technology and philosophy to ideology (Potter, 1996, p. 68). On the other hand, Peirce adopts an explicitly conservative stance as he argues that traditions, sentiments, and habits of instinctive reflection ought not to be directly affected by ethical and logical speculation. In “philosophy, touching as it does upon matters which are, and ought to be, sacred to us, the investigator who does not stand aloof from all intent to make practical applications, will not only obstruct the advance of the

⁷ Obviously, these categories are broad and rather vaguely defined. At times, Peirce – with notable lack of scientific precision – treats “science” and “theory” as equivalent, while mostly making a basic distinction between theoretical and practical science. In a more detailed study, these concepts ought to be methodically scrutinized and sorted out; but for the modest aims we are pursuing here, it suffices to indicate the “modes of life” as “Theory” and “Practice” (with capital “T” and “P”), and to employ “theoretical science” and “practical science” when referring to the disciplinary division. The ambiguity of Peirce’s basic conceptual apparatus is, I believe, a reflection of some inherent tensions in his views, especially as these are put forward in the 1898 lectures.

pure science, but what is infinitely worse, he will endanger his own moral integrity and that of his readers" (RLT 107 [1898]). Peirce is quite prepared to exclude those who do not agree with this point of view from the sphere of scientific philosophy.

No doubt a large proportion of those who now busy themselves with philosophy will lose all interest in it as soon as it is forbidden to look upon it as susceptible of practical applications. We who continue to pursue the theory must bid *adieu* to them. But so we must in any department of pure science. CP 1.645 [1898]

Consequently, it would appear that the upshot of Peirce's account of Theory and Practice is a purified idea of philosophy. In order to be scientific, philosophical inquiry should ignore all questions of practical applicability and usefulness. Its function is not to reform conditions of life, but to contribute to science in the narrower sense of Theory. True philosophy must be "purely intellectual" and not attempt to cover "every department of man's nature"; it is, as Peirce puts it, an "abstract" and "passionless" pursuit (CP 5.537 [c. 1905-8]).

4. The vitality of application

As Peirce readily admits, the distinction between Theory and Practice he postulates leads to a rather abstruse and arid conception of philosophy (CP 5.537 [c. 1905-8]). However, there may again be some polemical overstatement involved;⁸ at times, Peirce's defence of intellectualism runs the risk of losing sight of curiosity, interest, and imagination as vital (*sic*) facets of science. Indeed, his insistence that philosophical investigation ought to be "passionless" would, were it taken literally, entail the elimination of the very spirit of inquiry, which Peirce repeatedly and emphatically identifies with an unflinching *desire* to know and learn – this *passion* purportedly being the *only* thing that is absolutely indispensable for genuine research (CP 6.428 [1893]; MS 860:2 [c. 1896]; MS 326:6; MS 693:48 [1904]). This, as we soon shall see, is not the only problem with placing philosophy plainly

⁸ Peirce's characterization of scientific philosophy as "abstruse, arid, and abstract" is a reaction to F. C. S. Schiller's humanistic programme. Curiously, however, Peirce's attitude toward this particularly verbose variant of pragmatism is rather ambivalent. At times, he seems to dismiss it as an unsophisticated spin-off; but in other contexts, Peirce indicates that Schiller's pragmatism is actually closer to his own *pragmaticism* than any other variant of pragmatistic thought (except perhaps that of Josiah Royce). The reason for this *prima facie* perplexing association is, I believe, Schiller's explicit recognition of the purposive/teleological aspect of pragmatism, and of its anthropomorphic implications.

in the Theory box; but before considering some internal qualifications to Peirce's viewpoint, it is important to stress that the emphasis on the intellectual character of philosophical inquiry does not, as such, commit Peirce to scientific *rationalism*. Theory is not privileged in the sense of covering all aspects of reality (cf. Colapietro, 1998). From a certain point of view, Theory is actually of less weight than other forms of life; although decisively dependent on mundane inquiry, human beings could live without pure science. Its accepted propositions can be abandoned without thereby causing irrevocable problems for everyday conduct. Peirce is arguably an *anti-theoreticist* in this particular sense, for he does not hold "the position that the strictly theoretical provides the most adequate, least distorted, representation of reality attainable by human beings" (Colapietro, 2006, p. 25).

At least a part of Peirce's criticism of mixing philosophy and Practice should be understood as a reminder of the limitations of reasoning. While there is no point in postulating artificial limits to human imagination and speculation – which would be like introducing a legal ban on jumping over the moon (cf. CP 5.536 [c. 1905]) – human beings are nonetheless fallible reasoners who necessarily rely on uncriticized habits in their daily conduct. Such commonsense habits of feeling, action, and thought will appear to be practically infallible to the individuals who live their life without doubting their satisfactoriness. Obviously, we often use our intelligence when confronted with practical problems in everyday life; but it does not require an expressly developed theory of reasoning. Peirce claims that human beings possess what he (following medieval philosophers) calls *logica utens*, a kind of habitual "logic in use" or a rudimentary logical theory (see, e.g., RLT 109 [1898]; CP 2.186 [c. 1902]; PPM 212 [1903]). He argues that many "of our reasonings are [...] performed instinctively", and adds that he would never "recommend that such modes of action be given up in favor of theoretical procedures, except to compare theory with practice or for some other peculiar and quite theoretical purpose" (MS 693:20 [1904]). In most cases, we manage nicely without being fully aware of the logic we employ; in fact, it is on the whole wiser to rely on the *logica utens* that manifests itself as mechanical inferences and "gut feelings" than to try to reflect profoundly on everyday problems.⁹

⁹ Peirce argues that the more important – or "vital" – such problems are, the less room there is for deliberate reasoning. This feels a bit simplistic, and should perhaps be taken with a grain of salt. No doubt, some "vital crises" are best handled "instinctively"; but there are obviously also major practical decisions that can benefit from reasoning. Of course, the time

Most men are incapable of strong control over their minds. Their thoughts are such as instinct, habit, association suggest, mainly. Their criticism of their thoughts is confined to reconsideration and to asking themselves whether their ideas seem reasonable. I do not call this reasoning: I call it instinctive reflexion. For most purposes it is the best way to think; for instinct blunders far less than reason. Reasoners are in danger of falling into sophistry and pedantry. Our instinctive ways of thinking have become adapted to ordinary practical life, just as the rest of our physiology has become adapted to our environment. Wisdom lies in nicely discriminating the occasions for reasoning and the occasions for going by instinct. CP 7.606 [1903]

If anything, Peirce privileges the “instinctive” groundwork of sentimental habit, for he argues that it embodies “the traditional wisdom of ages of experience”;¹⁰ indeed, he maintains that it is not even prudent to reason about such matters, “except in a purely speculative way” (CP 1.50 [c. 1896]). According to the “sentimentalism” advocated by Peirce, reasoning is actually a comparatively superficial faculty, unable to provide ultimate foundations for conduct; human reason “appeals to sentiment in the last resort” (RLT 111 [1898]). Arguably, it is not through deliberate reasoning that we discover “the most vital factors in the method of modern science” (CP 7.87 [1902]); they are encountered or experienced in the more immediate and practical field of sentiment.

Paradoxically, theoretical reflection on the Theory-Practice relationship ends up showing that philosophical inquiry is not strictly speaking autonomous, but dependent on the virtually instinctive groundwork of sentimental habit, which is not directly affected by reasoning. Yet, this relative inscrutability does not mean that this experiential underpinning would be completely indistinct and unknowable. In the early article ‘The Doctrine of Chances’ (1878), Peirce identifies “three sentiments, namely, interest in an indefinite community, recognition of the possibility of this interest being made supreme, and hope in the unlimited continuance of intellectual activity, as indispensable requirements of logic” (W 3:285). He adds that it is not odd that we should find social sentiment presupposed in reason-

to reason may be limited in such a situation; but that only highlights the need to cultivate adequate habits of sign use, in preparation for what may come.

¹⁰ Peirce’s use of “instinct” tends to be broader than the contemporary acceptance. Here, the concept primarily denotes something that is not governed by conscious reasoning. Consequently, the sphere of instinct can encompass natural dispositions as well as certain acquired sentiments – and perhaps even less constant habits of tradition. Again, as the lines between various types of habit are not definite, it is safest to treat the “instinctive” as a matter of degree.

ing, since logic (or semeiotic) depends on a struggle to escape doubt, terminating in the formation of habits of action but beginning in emotion. The method of science is adopted because other methods of fixating belief – tenacity, reliance on authority, the a priori method – fail on account of “the social impulse” (W 3:285). If anything is taken as a primitive or given in Peirce’s account, it is this impulse or sentiment that is intrinsically connected to the desire to learn. Thus, this sentimentalist viewpoint corroborates the claim that sociality and ethicality are intrinsically linked in Peirce’s account of scientific inquiry. Consequently, it would appear that the postulated chasm between Theory and Practice, or between scientific reason and moral sentiment, is not as absolute as it might appear on first encounter.

Yet, there is something troubling in the way Peirce tends to separate Theory from Practice and philosophy from application in his defence of pure science and sentimentalism. According to the pragmatism that he adjusts but never abandons, the meanings of concepts and propositions cannot be properly understood without reference to their conceivable practical consequences. Moreover, he notes that “practical considerations enter into scientific reasonings, unavoidably” (NEM 3:874 [1909]). These contentions seem to fit poorly with the autonomy of science that Peirce advocates. In fact, they do indicate certain limits to the ideal freedom of scientific inquiry. In a pragmatistic spirit, Peirce maintains that acceptable theoretical conceptions must have at least *some* connection to actual or possible practice; it is the basis of their testability, their communal validity. In other words, the claims must in some sense be open for public trial, although their truth is not dependent on any set of *actual* tests. Moreover, science typically gives rise to new possibilities for experimentation; “although heuristic scientists look upon their work as purely theoretical, and many of them feel a utilitarian application, even of the highest kind, is comparatively lacking in the sacredness of pure science, they are nevertheless particularly given to thinking of their results as affording conditions for new experiments, if not in the narrower, then in the broader sense of the term,¹¹ although they may have the vaguest possible notions of what those experiments may be” (EP 2:372 [c. 1906]). Even though science, unlike food and shelter, is not strictly a necessity of life, it is nonetheless the prime means by which human beings can deliberately develop their cognitive capabilities. The fact

¹¹ Peirce specifies the “broader sense of experiment” as “any observation made to test the hypothesis”, and opposes it to the narrower sense, in which “special conditions of experience are purposely created” (EP 2:372 [c. 1906]).

that theoretical claims are always idealizations without exact correspondents in the practical world does not render them useless.

Of course, no proposition of theoretical science is true in practice. In other words it is only true of an ideal world that differs from the actual world. What of that? It is the only way to attain any kind of mastery of the real world.

NEM 3:833 [1905]

Peirce's seemingly contradictory statements concerning the relevance of practical considerations and implications can be partly reconciled. Vincent Colapietro (1998, p. 248) identifies two principal acceptations of "the practical" in Peirce's writings. In the narrowest sense, "practical" refers to a restricted interest in immediate satisfaction; but Peirce also defines the term as "apt to affect conduct", adding that conduct is "voluntary action that is self-controlled, i.e. controlled by adequate deliberation" (CP 8.322 [1906]).¹² Philosophy and Theory should be severed from practical concerns in the first sense, but theory (with a small "t") cannot be wholly isolated from conduct in the second pragmatistic meaning. In this more substantial acceptation, science can be said to depend on practice, for the ultimate meaning of its concepts and propositions must involve some reference to possible practical consequences;¹³ as Peirce notes, "regarding a truth as purely theoretical does not prevent its being regarded as a possible determinant of conduct" (EP 2:372 [c. 1906]).

Yet, even if we accept this relatively charitable reading, at least two points of contention remain. First, it is questionable whether a philosopher can truly adopt the stance of scientific disinterest, in which practical belief allegedly plays little or no role, and still be able to practise philosophy in the Peircean sense. The philosophical inquirer is purportedly engaged in a general examination of common interpretative experience or facts of everyday life (see, e.g., CP 3.428 [1896]; CP 7.527; PPM 151 [1903]), and it would thus seem that practical belief is not only an object of research but also a necessary testing ground for any theoretical hypothesis that a philosopher might conjure up (cf. CP 2.333 [c. 1895]). At the very least, it seems prudent to keep in mind that unguided speculation in philosophy easily can turn

¹² To the two senses identified by Colapietro, we could add the previously noted acceptation of "the practical" as a sphere of life – Practice – distinguishable from Theory.

¹³ Obviously, many contemporary sciences deal with concepts that would appear to have little or no connection to actual or possible experience; but if Peirce is right, there must be at least an indirect link to some such pragmatic dimension or else the terms used and propositions put forth by scientists are meaningless. Even in science, human beings cannot fully transcend their experience (cf. CP 5.536 [c. 1905]).

into a fabrication of paper doubts. Arguably, philosophy needs a twofold anchor in experience and belief if it is to produce something more than intellectual play.

Secondly, and perhaps more controversially, I would argue that that Peirce overstates his case when he wishes to separate theoretical philosophy from application. Although philosophers are theorists *par excellence*, in the sense that their primary “laboratory” is the world of ideas, it is worth emphasizing that Peirce maintains that such efforts constitute the only way to attain some command of the world of experience (NEM 3:833 [1905]) – which also involves an implied reference to the limited but real capacity to exercise control of our habits by means of imaginative, diagrammatic experiments (in both mundane everyday self-governance and higher-level ideal projections of future selves and communities). This already suggests that his conception of philosophy is not quite as strictly separated from application as he lets on – not, at least, if applicability is understood broadly enough. Ultimately, philosophy is not pursued for the benefit of speculation or aesthetic amusement as such, but with the aim of improving habits.¹⁴ This does not turn the Peircean agenda into a utilitarian approach, for the ideal of a perfect habit, as something that would function without glitches and never give reason for doubt, is not incompatible with the idea that science pursues truth (see, in particular, EP 2:336 [1905]). To some extent, it does bring the notion of “truth for truth’s sake” down to the level of practice, but arguably without thereby denigrating theoretical science, diminishing the value of the fundamental desire for truth, or inexorably infringing on the reasonable autonomy of Theory.

However, the separation between philosophy and application needs to be further qualified, if not partly reconsidered. While it is certainly plausible and imperative to maintain that philosophy ought not to be concerned with the satisfaction of immediate interests, this does not mean that it should drop all considerations of applicability from purview in the devel-

¹⁴ This claim seems to conflict with the views of some Peirce scholars. For example, Vincent Potter (1996) argues that action “through thought is only the upshot of inquiry; it is neither its purpose nor its legitimate motive” (p. 74). However, although it is true that Peirce emphatically denies that pragmatism makes “Doing to be the Be-all and the End-all of life” (EP 2:341 [1905]), he is simply criticizing the notion that singular deeds or actual collections of actions could be viewed as exhaustive of the meanings of thoughts and symbols. Peirce reserves this status for rationally and purposefully developed habits of action. In this sense, continuously successful action *is* the purpose and motive of inquiry; but so are “finding truth” and the growth of reasonableness. From the point of view of habit, they are but two sides of the same coin.

opment of theoretical conceptions. The dictum that philosophers should be forbidden to even consider their work as susceptible to practical application is too austere; if it does not completely block certain paths of inquiry, the directive can *a priori* discourage imaginative reflection that may be crucial for the purposeful direction of research.¹⁵ Peirce is certainly aware of this danger, as he shows in the following reflections on the applicability of logic:

a theory cannot be sound unless it be susceptible of applications, immediate or remote, whether it be good economy so to apply it or not. This is perhaps no more true of logic than of other theories; simply because it is perfectly true of all. [...] It might be that a normative science, in view of the economies of the case, should be quite useless for any practical application. Still, whatever fact had no bearing upon a conceivable application to practice would be entirely impertinent to such a science. It would be easy enough – much too easy – to marshal a goodly squadron of treatises on logic, each of them swelled out with matter foreign to any conceivable applicability until, like a corpulent man, it can no longer see on what it is standing, and the reader loses all clear view of the true problems of the science. CP 2.7 [c. 1902]

“Logic” (whether understood more narrowly as formal logic or more broadly as semeiotic) is undeniably the backbone of Peirce’s philosophical edifice; consequently, it seems plausible to take the quotation above as a strong argument for the contention that Peircean philosophy should not be absolutely severed from application. Again, this does not mean the surrender of Theory to the domination of short-term utility and satisfaction. What is needed is a significant but not absolute distinction between *actual* application and *conceivable* application – not a division between pure philosophy, which floats in the clouds of Theory, and utilitarian application, isolated to the worldly sphere of Practice. While Peirce at times argues too straightforwardly for the view that the settlement of opinion would be the sole aim of inquiry and sometimes conversely overstates the case for pure science, a plausible elucidation of his approach to philosophy should

¹⁵ The material conditions under which science, as an actual mode of conduct, must function are not only limitations posed on inquiry; they can also serve as guides in the endeavour. While a scientist is in principle free to entertain any proposition he or she likes, it is rational to try such hypotheses that could be credibly proven true or falsified within a reasonable time-frame, given certain initial conditions and plausible expectations of the future. Although it is not possible to discuss these issues in detail here, we may note that Peirce even develops a theory of such factors under the name “the economics of research” (W 4:72-78 [1879]; RLT 178 [1898]; CP 5.600 [1903]).

arguably lead to a balanced and nuanced conception of the relationship between Theory, Practice, and application.

5. Some theoretical and practical implications

If the programmatic compromise proposed in this article is viable, it should, according to its own rationale, have conceivable upshots for the complex theoretical practice we call “philosophy”. That is, having come thus far, we should ask the naive but sobering pragmatist question: “What difference does it make?” More specifically, one may wonder whether deliberation on “conceivable application” truly can – or should – affect the future pursuit of Peircean philosophy in any consequential way. In spite of the vagueness of the proposal sketched, I believe this to be all but unavoidable; and I will therefore conclude this article by briefly suggesting two potential implications of taking application seriously for our understanding and use of Peircean thought.

On a relatively pure theoretical level, consideration of conceivable application supports the idea (briefly referred to above) that a pragmatistic attitude in philosophy serves as a useful – perhaps even necessary – curb on the tendency toward excessive abstraction. At first blush, such a claim may feel rather un-Peircean; for surely, Peirce is a resolute proponent of formal and exact methods in philosophy, and a well-known defender of abstract thought and real generality against the particularistic worldviews of materialism and nominalism. This is all true, but it should be balanced by Peirce’s warning against inflated formalism, in which logic is turned into a “mathematical recreation” (W 4:421 [1883]). Keeping in mind that logical science in the broad sense is equivalent to semeiotic – and that philosophy is meant to be a study of familiar *experience*, and hence distinct from pure mathematics – we may identify a part of Peircean philosophical inquiry that is arguably particularly susceptible to such over-abstraction: the classification of signs.

By this, I do not mean to disqualify the grammatical pursuit of systematic classification; unquestionably, the methodical ordering of sign classes is a key part of Peirce’s sign-theoretical pursuit, as it delves into ever-finer distinctions grounded in his relational theory of categories. However, there is also a slightly disconcerting aspect to the endeavour, which has perhaps not received sufficient attention. Namely, Peirce’s suggestion that we should set out from a *purely* mathematical or formal conception of semiotic relations – something from which “all accidents of experience, however universal, must be excluded” (EP 2:389 [1906]) – in effect leads to a division

of semeiotic into an *a priori* phase, preoccupied with the “phaneroscopic”¹⁶ scrutiny of purely possible sign classes, and a secondary *a posteriori* phase of checking whether the theoretical entities so obtained actually happen to correspond to anything in the reality where signs are used (EP 2:289 [1903]). This seems to work smoothly enough as long as the basic elements of the examination are limited to sign, object, and interpretant (as in the 1903 *Syllabus*), but the whole approach begins to look more dubious as Peirce’s semeiotic develops and the number of components to be taken into account increases. Arguably, semiotic experience forces us to recognize different kinds of objects and interpretants; and the latter in particular, understood as semiotic effects in a broad sense, have a tendency to proliferate in a way that renders the orderly formal classification of the earlier semeiotic either insufficient or infeasible. To put it very simply, strictly formal considerations do not provide any rule for definitely determining the number of theoretically and practically relevant semiotic effects.¹⁷ Although the question of how many interpretants Peircean sign theory truly necessitates continues to be debated (see, e.g., Lalor, 1997; Liszka, 1990; Short, 1996), any figure higher than three would turn the pursuit of comprehensive classification into a virtually endless glass-bead game.¹⁸

In semeiotic, the question of what constitutes a pragmatically meaningful class of sign – in distinction from a purely formal possibility – will

¹⁶ In this context, *phaneroscopy* (or *phenomenology*) is restricted to a study of the formal facets of the “phaneron”, or “the collective total of all that is in any way or in any sense present to the mind, quite regardless of whether it corresponds to any real thing or not” (CP 1.284 [1905]).

¹⁷ From a strictly relational point of view, there is actually no end to the pursuit of triadic classification; by repeatedly applying the categorial scheme, we can in theory keep going as long as our heads do not explode, identifying relations between relations, and introducing ever more subtle trichotomies. Peircean analysts may have to fight the “triadomaniac” temptation to distinguish a further 1st, 2nd, and 3rd of any *x* (such as of a branch of science, or of a class of sign); sometimes, the relevant question is not whether a further logical division is possible, but rather when and why one should stop analyzing.

¹⁸ A theory with two objects and three interpretants gives us 3^{10} or 59 049 “difficult questions to carefully consider” (CP 8.343 [1908]). With orders of determination and dependence taken into account, this purportedly leads to the 66-class arrangement of sign types (see SS 160–6, for Irwin Lieb’s version of how this is achieved; but cf. Sanders, 1970). With more objects and interpretants, one would (1) need to settle which trichotomies are relevant for the classification at hand, and (2) decide on principles for the order of semiotic determination and dependence (possibly taking multiple dimensions into account) – or else be faced with 3^t “difficult questions” (where “*t*” indicates number of trichotomies). The full classification would, unless constrained by extra-formal considerations, almost certainly be unwieldy (swelling like a “corpulent man” that cannot see the ground on which he is standing, to use Peirce’s metaphor).

almost inevitably arise at some point; and that takes us back to potential experience and possible application in a more concrete sense. That is, the question of what the use of the proposed classificatory scheme is or might be will inescapably crop up; and to a large extent, this turns out to be a rhetorical or methodetic matter, for grammatical sign classifications should be expected to cast light on issues of scientific inquiry, cognition, and communication. This is not merely a secondary stage of deriving scientific applications from theory, for such comparatively practical considerations help guide theoretical development itself, suggesting directions and hopefully a reasonable economy of research efforts; accordingly, they can be said to function analogously to self-control in Peircean ethics. Without such constraint – which, however, never should be allowed to form an absolute block on the path of inquiry – classification according to Peircean principles may turn out to be an elegant arrangement of lifeless elements, which could be dismissed using Peirce’s own stinging assessment of Ernst Schröder’s algebra: “it has too much formalism [...] too many bushels of chaff *per* grain of wheat” (CP 3.451 [1896]).¹⁹

Lest I be misunderstood, I wish to repeat that this does not entail vulgar, satisfaction-focused pragmatism or utilitarianism; the pragmaticist consideration of practical consequences and applications in question is primarily theoretical. But this deliberation does caution against excessive formalism in philosophy, a danger to which Peirce himself draws our attention as he notes that the failure of many philosophers has been caused by their tendency to ape mathematics, “crudely mimicking its externals” (NEM 4:228 [1905-6]). While Peirce asserts that philosophers certainly have much to learn from more successful sciences, especially the natural sciences and mathematics, and notes that all sciences have a mathematical aspect inasmuch they involve hypothetical and diagrammatic reasoning, he also emphatically defends the distinctiveness of philosophical investigation as a general study of everyday experience.²⁰ Therefore, the argument sketched here does not deny the significance of formalist approaches in philosophy; it is simply a reminder that such strategies do not by themselves suffice to cover the philosophical field. And this qualification should always be balanced with an emphatic warning of the dangers of attempts to reduce

¹⁹ See Bergman (2009) for a more detailed discussion of formalism in the context of Peirce’s semeiotic.

²⁰ In a sense, the mathematical facet is the domain of free play of imagination, with the experiential aspect providing a needed dose of “brute fact” in addition to raw materials for the imagining.

philosophy to a mere instrument of special science (“physical” and “psychical” alike), practical science, technology, politics, or combative rhetoric.

In view of this Peircean recognition of the status of philosophical study as a sovereign mode of inquiry, my final contention may seem doomed; for I want to suggest that the consideration of application (in the sense sketched above) is connected to a *melioristic* aspect of Peirce’s conception of philosophy. This proposal can undoubtedly feel inappropriate in view of his strong condemnation of the “Hellenic tendency” to mix Theory and Practice; but if construed sufficiently generally, meliorism is arguably a key element of his project. It is, in fact, more than implied by his mature rendering of esthetics, ethics, and logic as the normative core of philosophy; for normativity can, in this context, be conceptualized in terms of the improvement of habits of feeling, action, and thought. From this point of view, we do not simply pursue philosophy in order to understand and describe what *is* there (in us and in the world, to use a somewhat un-pragmatistic dichotomy), but also in order to imaginatively transform and develop personal and communal habits of thought, communication, action, feeling, etc. This is a *vital* matter, for as Peirce puts it, “continual amelioration of our own habits [...] is the only alternative to a continual deterioration of them” (MS 674:1 [c. 1911]). Possibly, at least, one of the key functions of normative philosophy is to aid human beings in this task. This does not entail that philosophers must be able to identify and enumerate the utilitarian value of their activities, not even in the long run; but it arguably indicates that the creative employment Peircean ideas in more concrete fields of inquiry – and possibly even in “real” life – may not be quite as preposterously misguided as one might think in light of the 1898 lectures. And to the extent that such “applications” produce new occasions for experience, they ought to be considered as significant feedback for the theoretical endeavour. Consequently, one could argue that Peirce’s philosophical project is, in this particular sense, inherently entrenched in Practice as well as in Theory, without thereby denying the value of the divisions of intellectual labour that he emphasizes.

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