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TRUTH AND RATIONALITY

This paper is about the pragmatic notion of truth, according to which what we believe in the ideal limit of inquiry is true. Hence, it refers to the dynamics of belief and thus to theoretical rationality. Thereby, truth and rationality are inexorably entangled; neither can be explained without the other. The paper intends to make plausible that this entanglement may be developed into rigorous and fruitful theory.
Keywords: *the pragmatic notion of truth, the dynamics of belief, rationality.*

1. Introduction[1]

The last chapter of [1] explains my version of what may be the deepest connection in theoretical philosophy, that between truth and rationality. Claiming such a version may be presumptuous. Many able philosophers have already tackled this topic. Well, the first lesson about philosophy is that it is a Sisyphus' task. If you are gifted and lucky, you roll the stone up the mountain near to where your mothers and fathers did, or a little besides or even a little bit further. It's not really important how far you get; it is important to keep the stone rolling, so that your sons and daughters may go on trying more easily on smoother paths. This is my only goal: to keep the stone rolling.

This chapter attempts to develop the beginnings of a rigorous theory about that connection with potentially interesting and far-reaching consequences. This is not my goal here. Here I only want to make intelligible that there really is a connection, what it may be, and that it may indeed be turned from metaphor to theory. In trying to do so, I will avoid mounting any formal hurdles. Thus, this paper serves as a basic introduction to this chapter.

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[1] This paper is a printed version of my Lakatos lecture, which I gave on May 9, 2013, at the London School of Economics on the occasion of the distinction of my book [1] by the Lakatos Award 2012. There I first express my deep indebtedness to David Hume; the book is Humean in spirit through and through. The primary aim of the lecture was, however, to explain, in an entirely informal way, the point of chapter 17 of this book, the last and quite inaccessible chapter after a long series of difficult formal chapter. Hence it should serve as a useful introduction to the deep issues pursued in this chapter. The paper leaves the body of the lecture unchanged. I have not tried to further elaborate its various lines of thought. Only the introduction is new. And the style is slightly changed from a talk to a paper. Moreover, I ought to and hence did make explicit at least some of the many hidden references.

Section 2 will start with addressing truth. Its point will be that the pragmatic theory of truth is not an appendix to the correspondence theory of truth, but an independent account on an equal footing. The pragmatic theory clearly requires a rational account of the dynamics of belief. Section 3 will pursue this connection and explains the role of reasons for such an account. So the question arises how much we can say about the rationality of the dynamics of belief. The point of section 4 will be to argue that we can say indeed more than was hitherto thought and that there are indeed general rationality principles linking truth with reasons and thus with the dynamics of belief. These principles substantiate the pragmatic theory of truth. Finally, section 5 will briefly address some familiar worries about the emerging theory. I will be content with explaining that they seem to be resolvable.

2. Truth

What's truth? Clearly something most important. If we did not conceive of ourselves as truth seekers, we would miss a central human dimension. For instance, we could close down our universities. And when we seek the truth, we seek something objective that we can share and debate. If truth were only subjective, truth for you and truth for me, there would be nothing to share and to debate.

However, what is it what we are seeking there? Its content seems elusive. The classical quote is from Aristotle's *Metaphysics* (1011b25)*,* which is partially borrowed from Plato's *Sophist*. It says: "To say of what is that it is not, or of what is not that it is, is false, while to say of what is that it is, and of what is not that it is not, is true." This is the famous correspondence theory, which says that truth is assigned to our thoughts, beliefs, or claims if they agree with the facts. This sounds trivial, it is trivial, but it is almost the only game in town.

After the correspondence theory remained pupated for two thousand years, it was first turned into a proper theoretical enterprise by Tarski's semantic theory of truth. It is surprising to see how many fine distinctions philosophers have developed in the meantime, how many slight variants of that platitude, and how many subtle arguments for and against the variants.

I am far from belittling those attempts. They form a fascinating cosmos.[1] However, if one looks at them from some distance they appear like idle play. There are all those ontological categories: assertions, sentences, beliefs, contents, propositions, states of affairs, facts, events, even tropes, and so forth. All these categories may and should be distinguished. But somehow they all seem to mutually correspond, in virtue of the fact that they all are identified by propositional complements: the assertion that a is P, the sentence "a is P", the belief that a is P, the proposition that a is P, the fact that a is P, the event of a's P-ing, the trope of a's being P, etc. We seem to move here within a linguistic switching yard. It is certainly instructive to study all the switches, but we seem to gain not much ground by doing so.

The core deficit of all those variants of the correspondence theory of truth is their complete epistemological barrenness. We had hoped that truth theories give us guidance in finding the truth or at least in certifying when we possess the truth; this is our need. However, correspondence theories give us nothing of that sort.

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[1] An excellent overview over this cosmos of the correspondence and its history is given by Künne [2]. Unfortunately, epistemic theories of truth, to which I will turn below, receive a rather depreciatory treatment in this book in my view. For a still more formal treatment of this cosmos see, e.g., [3].

Already Berkeley has ridiculed the correspondence theory by remarking that only ideas are similar to ideas. We are caught within our ideas and can compare them only with further ideas and not with the external facts themselves.

That is, you can, of course, compare my beliefs with the external world and judge whether I am right or wrong. Therefore, one might say that the correspondence theory grasps truth from an ontological or third person perspective. Now it is certainly helpful when you tell me whether I am right or wrong. However, from my point of view this is just another opinion that I should take into account; how much it counts is up to my assessment. When I seek epistemological advice from truth theories, I look for a truth theory from the epistemological or first person perspective. Moreover, we are all sitting in one boat. External views on us are healthy, but in the end the first person perspective is not an individual one, but the collective perspective of humanity. We need a truth theory filling this perspective.

The hard-boiled correspondence theorist thinks that we are seeking a chimera. Still, many respectable philosophers have undertaken this search; they meet a need, and they can't be all wrong. However, when we follow them, we sink into a morass. In the post-Wittgenstein era, people looked for a criterion of truth that should help us deciding about the truth[1]. Criteria were not definitions, but almost; they were reasons that cannot be trumped. My impression is that criteria are outmoded today; people seem to have given up on them.

Still earlier, there was the coherence theory of truth vigorously discussed among the logical positivists and maintained also by the British idealists. The truth criterion, to use this word, should somehow lie in the coherence of a belief with the other true beliefs[2]. No doubt, our judgment formation is importantly guided by coherence considerations. However, at the old times the program foundered at the impossibility of more precisely grasping the notion of coherence; and in my view this situation has not basically changed. The notion of coherence seems too vague and too hard to grasp to be suited as a theoretical key to truth[3].

There is another theory, still older than the logical positivists, namely Charles Sanders Peirce's pragmatic theory of truth. It attempts to state a close relation between belief and truth and seems thus suited to inform the epistemological first-person perspective. Its central notion is the limit of inquiry. We do science for many centuries; we explore the world ever more extensively and intensively, at new places, in new dimensions, and with refined methods and theories. Of course, we have thus explored only a minute part of the universe. But imagine that we carry on this process indefinitely until we have investigated absolutely everything. This is an extremely counterfactual assumption, for sure. Mankind will remain parochial and goes extinct. It is even physically entirely impossible to get very far with this investigation, and it is impossible to carry out any investigation without changing the universe, though we usually pretend that our observations do not influence the observed. Still, we are very familiar with what is supposed to get carried to a limit; that limit is not so alien.

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[1] For instance, Rescher [4] takes his coherence theory of truth about the criteriology and not about the definition of truth.

[2] For a short presentation of the history of the coherence theory of truth see [2, sect. 7.1.2]. However, till the present day [4] is the only full-blown, even if idiosyncratic elaboration of a coherence theory of truth.

[3] Recently, there are quite a number of attempts to explicate coherence in probabilistic terms; cf., e.g., [5]. However, as far as I see they can't be used for promoting any coherence theory of truth.

In the limit, our beliefs cover everything. Are they true? We may still cultivate our skepticism, but this would definitely be mere paper doubt. There remains no skeptical gap. There is no experience and no consideration left that could prove us wrong. Hence, they must be true. At least, we are perfectly justified in calling them true, in the specific sense of perfection reachable only in this limit. Or to express it in my favorite slogan: After the exhaustion of all reasons our beliefs must be true.

This is my phrasing of the pragmatic theory of truth. Peirce [6, sect. IV] puts it in the following succinct way:

"The opinion which is fated to be ultimately agreed to by all who investigate, is what we mean by the truth, and the object represented in this opinion is the real. That is the way I would explain reality."

Even more pertinent, perhaps, is the following quote of James [7, 98]: Truth is

„an expedient in the long run and on the whole of course … The ‚absolutely' true, meaning what no farther experience will ever alter, is that ideal vanishing point towards which we imagine that all our temporary truths will some day converge."

The pragmatic tradition is still strong in American philosophy. In his penultimate period Hilary Putnam was a vigorous defender of pragmatic or, as he called it, internal truth. His still shorter slogan was: the ideal theory must be true – where the ideal theory is the one reached in that counterfactual limit of inquiry.[1]

So far, so good. The pragmatic theory of truth sounds attractive, if not convincing. However, I had dismissed the coherence theory as quite hopeless. Is the pragmatic theory any better? It sounds quite obscure. Indeed, this is the most salient difference to the correspondence theory. After its wakening through Tarski, the latter meets all standards of rigorous theorizing; the switching yard, as I called it, is basically under our strict conceptual control. Quite the opposite is true of the pragmatic theory up to the present days, so much so, that the opponents may well doubt that we are dealing with any theory of truth at all.

In the rest of this paper I would like to defend the view that the pragmatic theory really offers a second notion of truth that is, to some extent, amenable to rigorous theorizing. I emphasize: a second notion. This entails that I fully accept the correspondence theory or some of its variants. It also entails that there are indeed two notions of truth. There are both, the epistemological first-person and the ontological third-person perspective; and each has its own notion of truth.

Let me add a remark as an aside: Two-dimensional semantics, which I fully endorse, has taught us that there are two kinds of intensions, horizontal and diagonal or *C*- and *A*-intensions. Correspondence truth pertains to horizontal intensions, and pragmatic truth pertains to diagonal intensions. And then the term "true" has a two-dimensional meaning by itself, with a horizontal intension determined by the correspondence theory and a diagonal intension determined by the pragmatic theory – so that the two theories are united within one two-dimensional scheme.

These are only programmatic hints pointing to the larger picture behind this paper.[2] Let me return to pragmatic truth by itself. As explained so far it is not yet fit for that larger picture; we must try to develop it more precisely.

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[1] See, e.g., [8], [9].

[2] In [10] I have elaborated on this picture and argued more carefully that indeed two theories of truth are required.

3. Thy Dynamics of Belief

The starting point seems quite obvious. If we want to understand the limit of inquiry, we need to understand our motion approaching that limit, that is, the dynamics of our belief or judgment formation, indeed the rational dynamics how it ought to rationally move, and not the actual dynamics with all its a- and irrational influences and restrictions such as forgetfulness, stubbornness, etc. Saying this already gives a sense of how our two key terms "truth" and "rationality" may come together. The task is to unfold this connection.

Strangely, the dynamic perspective on our beliefs is not so old. Early philosophy of science with its emphasis on confirmation or corroboration, i.e., on the context of justification and its neglect of the context of discovery had quite a static perspective[1]. The situation dramatically changed with Thomas Kuhn's *Structure of Scientific Revolutions* [13]. However, Kuhn thereby offered only a descriptive picture of the dynamics of science, and it remained a mystery whether there might be any rationality in that picture. Lakatos [14] and Stegmüller [15] were about the first to make constructive proposals at this point.

Ever since, theory change has remained an important topic in philosophy of science. I should admit, though, that there is a much older probabilistic treatment of epistemic change, which goes back to the 18th century, namely Bayes' theorem, which infers posterior probabilities from prior probabilities and likelihoods and thus lays foundations to statistical inference. However, both strands of thought are not well suited for our purposes.

Probabilistic epistemology proceeds on a fundamental theoretical level, which is just the right one for such a foundational topic as ours, and it provides a fully developed dynamic account. The basic problem, though, is this: There are no beliefs according to probabilistic epistemology; no subjective probability amounts to a belief. In probabilistic terms, you always take things to be more or less probable, but never to be true or false, as a belief does[2]. And it makes probabilistic epistemology unsuited for pursuing the pragmatic theory of truth.

My discontent with the post-Kuhnian strand is quite the opposite. This strand proceeds in terms of acceptance and rejection of theories or paradigms. This is well in line with talking of belief and disbelief. However, it starts at the wrong end by focusing on scientific theories, which certainly are the most complex objects of our epistemic attitudes. Foundational theorizing may reach, but must not start with such complexities. In this respect, my sympathies go with probability theory.

However, the fact that theory change was on the post-Kuhnian agenda strongly stimulated more foundational studies. The field is variegated, but the most prominent paradigm certainly is belief revision theory as established by Gärdenfors [18] and Alchourrón et al. [19][3].

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[1] Popper [11] and Carnap [12] may count as two of the old paradigms.

[2] I refer here to the famous lottery paradox, introduced by Kyburg [16, p. 197], which shows that the Lockean thesis, as it is called today, is not satisfiable in a probabilistic way. The Lockean thesis says that *A* is believed if and only if the degree of belief in *A* is sufficiently high. Despite ingenious attempts to overcome the problem (cf., e,g., [17]) I think it as unresolved as ever. Indeed, it is a fundamental cause of ranking theory as developed in [1]. If degrees of belief are understood as ranks, the Lockean thesis is trivially satisfied. See also my discussion in [1, ch. 10].

[3] In the meantime there are many introductions into this field. A nice and brief recent one is [20].

This theory has been my direct reference point. Very early I observed that it provides only an incomplete rational dynamics of belief and sought to improve it. The result was ranking theory, which I conceived of in 1982, which was first published in [21] and which is fully developed in [1]. It indeed delivers a full rational dynamics of belief. So, I would like to see ranking theory as the present culmination point of the development alluded to[1]. I certainly cannot claim to have returned to the complexities of theory change, of the evolution and revolution of scientific theories, also because there are more problems involved than those of belief change, the problem of conceptual change, for instance. Still, [1] indicates sufficiently, I think, that those complexities may not be out of reach. In any case, the fact that ranking theory provides a full rational dynamics of belief makes it suitable for studying the limiting behavior of that dynamics and thus for substantiating the pragmatic theory of truth.

How does it do so? In order to explain this I have to explain the basics of the dynamics of belief. Of course, this is technical stuff in the end, but I can explain the beginnings in ordinary terms. The fundamental point is this: We receive and accept reasons, through perception, through asking, listening and reading, and we rationally change our beliefs in response, and only in response, to receiving reasons. No rational belief change without reasons!

So much seems to go without saying. However, it merely defers the topic of rational belief change to saying what reasons are. Here we sink into another morass. This is the crucial battlefield of inductive skepticism. Many brave philosophers have fought sacrificially to say what good reasons are and to overcome inductive skepticism. With little success, I find; inductive skepticism is a hydra with many heads.

As a good Humean I propose to simply yield to inductive skepticism; we will see that there are ways to erode it from inside[2]. Yielding to it means making the notion of a reason entirely subject-relative. Whether or not the assumption or proposition A is, or would be, a reason for me for the assumption or proposition B is measured by my subjective epistemic state. To be more precise: A is for me a reason for B if and only if A supports B or speaks in favor of B in my view, if A makes B more credible to me, that is, if B is more credible to me given A than given non-A. I call this the positive relevance notion of a reason.

This explication requires several remarks. First, this notion of a reason presupposes that one can meaningfully speak of conditional degrees of belief. This is precisely what ranking theory delivers. It refers to beliefs. But, of course, beliefs can be more or less firm. So, it also refers to degrees of belief. And it does so in unconditional as well as conditional terms[3].

Secondly, reasons may come in various forms. There are sufficient reasons and necessary reasons, and there are still other increases in degrees of belief. There is, moreover, negative relevance. A is a reason against B, just in case A is a reason in favor of non-B.

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[1] I should mention that possibility theory, which was first developed by Dubois & Prade [22] and continuously elaborated by them in many papers, is formally equivalent to ranking theory. However, it was never driven by the firm interpretation and the dynamic interests that determined ranking theory.

[2] I have more fully explained this strategy in [23].

[3] I have fully developed this notion in ranking theoretic terms in [1, ch. 6]. In probabilistic terms it is just the notion of incremental confirmation of Carnap [12].

Thirdly, this notion of a reason is indeed entirely subjective. What is a reason for what solely depends on my conditional degrees of belief. If my epistemic state changes, my structure of reasons may change as well. There is just as much a dynamics of reasons as there is a dynamics of beliefs.

Fourthly, it is important to distinguish between being a reason and having a reason. Perhaps the phrase "*A* is for me a reason for *B*" is ambiguous. It may or may not include that I have or possess, i.e., believe in the reason *A*. Given this ambiguity we may enforce the non-inclusive reading by saying that *A* would be a reason for me in favor of *B*.

Finally, there is obviously a large intersubjective variance in the possession of reasons, just as in the possession of beliefs. However, there may even be intersubjective variance concerning what would be a reason for what. Just a tiny example: I argue: "Mick Jagger really is the greatest pop star on Earth. He even pleases the Queen." And you reply ironically: "Yes, indeed" – thus showing that you take the argument precisely the other way around. The history of inductive skepticism has produced more dramatic examples; the new riddle of induction about grue emeralds invented by Goodman [24] is certainly one of the most mind-boggling ones. This indicates the depth of the subject-relativity of that notion of a reason.

Having this notion of a reason firmly in mind, it comes out as an utter platitude that the rational dynamics of belief is driven by reasons. I have not introduced the rules of rational belief change, but it seems clear that they basically tell to move to the degrees of belief conditional on the received evidence as posterior unconditional degrees of belief, just as Bayes' theorem tells to do in the probabilistic case. Hence, I change my degree of belief, and possibly my belief, in a assumption or proposition *B* if and only if the received evidence is a reason for or against *B*.

One will object that this is really cheap success, that I made it true by definition that reasons drive belief change. Well, yes. But it is at least success, which is made possible only by our subject-relative notion of a reason.

4. Reasons and Rationality

We have to go on asking: Why does belief change defined in such a subjective way deserve to be distinguished as rational? This is indeed the crucial question, and I will give a two-step response. The more substantial second step will move us back to the pragmatic theory of truth.

The first step consists in the remark that not any distribution of conditional degrees of belief is permissible. Of course, each rational epistemic state containing beliefs must satisfy the basic axioms of ranking theory. And those axioms have extremely strong normative foundations. Besides the definition of conditional ranks (= the ranking-theoretic kind of conditional degrees of belief) the axioms only require the logical consistency of conditional beliefs; you must not believe *B* as well as non-*B* given any consistent condition *A*. If that's not reasonable, I don't know what is![1]

So, these axioms are at least minimal conditions of rationality, which determine the formal behavior of reasons. However, they still allow a lot of unreasonableness. We need to take a second step and to inquire into further postulates of

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[1] The point is more fully explained in [1, sect. 5.3].

rationality, which, of course, have an objective claim. This is what I mean by eroding inductive skepticism from inside.

Which form could additional postulates take? Well, they must somehow concern the structure of reasons. Note that, if reasons drive epistemic change, then all our capacities to learn, to form and change beliefs, are somehow implicit in the structure of our conditional beliefs and reasons. For instance, if a proposition were epistemically independent of all others, we could not learn anything about it, we could not make any experience about it. This appears unreasonable, and our aim must be to state principles preventing such a situation.

This aim has a Kantian ring. I would define as a priori each feature that all rational epistemic states must have and hence those propositions that all rational epistemic states must believe in; apriority and epistemic rationality fall in one. Hence, if I am going to explore rational principles of learnability, this is much the same as Kant's search for the a priori conditions of the possibility of experience. Of course, I proceed in quite un-Kantian terms. However, my notion of apriority seems closer to Kant's concerns than the current mainstream literature on apriority, which still tends to ground the a priori only in conceptual relations[1].

Let me be a bit more specific about principles of learnability[2]. We can't learn about propositions a priori; we rationally believe in them, anyway, at least when we master the conceptual means for understanding them. By contrast, empirical propositions a posteriori may be true or false and may or may not be rationally believed. Hence, the very first postulate is that a rational epistemic state must be able to learn about any empirical proposition a posteriori; that is, the degree of belief in such a proposition must be changeable or revisable. Indeed, it must be revisable through experience, through evidential or observational propositions.

This is our first principle. It is not news. It is a venerable principle maintained by empiricists of all brands and through all centuries, though sometimes in exaggerated terms of verifiability or falsifiability. I have only added a precise ranking-theoretic notion of revisability.

Of course, this revisability can obtain only if the structure of reasons is appropriate. And so the basic empiricist principle entails that for each empirical proposition a posteriori there is at least one inductive reason. In fact, we can prove a stronger principle, namely: however you split up the set of a posteriori propositions in two parts, you always find a proposition in one part that is a reason for some proposition in the other part[3]. So, the latter principle asserts something like the unity of science.

So far, I have postulated the universal sensitivity to experience or evidential reasons; no dogmatism whatsoever is rationally permissible. However, what's the point of this universal sensitivity and its exploitation in our incessant search for reasons? Getting moved by reasons is no intellectual dance without purpose; reasons should move us in the right direction. Philosophers say that reasons must be truth-conducive; they move us towards the truth. If this would not be the point of reasoning, it would be idle play.

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[1] I have more fully explained these ideas in [1, sect. 17.1].
[2] I am going to present now the strategy pursued in [1, sect. 17.2–4] in a very informal way. It is more fully presented in [25] in a semi-formal way. That paper may thus have a recommendable intermediate level of explanation.
[3] For a proof see [1, pp. 532–536].

This seems as obvious as it is mysterious. Perhaps I haven't studied enough, but I am not aware of any convincing attempts to establish the truth-conduciveness of reasons. If the aim, truth, is externally determined by a correspondence theory of truth and if reasons provide our internal guide-line for forming beliefs, then there is no guarantee that external aim and internal guide-line are in concordance; the skeptical gap is wide open.

There is an evolutionary argument. We obviously are pretty successful creatures, but we couldn't have been so, if our reasons had led us astray too often. So, apparently, our reasons must be quite reliable in detecting the truth. This is as well taken as it was not the answer we were looking for. No such empirical argument from the third person perspective can close the skeptical gap. I think it is impossible to do so in terms of the correspondence theory[1].

Things change when we consider the matter strictly from the internal, first person perspective, i.e., in terms of the pragmatic theory of truth, which refers to the limit of our reason-finding activities. Then the truth-conduciveness of reasons is more than an accidental empirical fact.

How precisely might we conceive of the connection? The basic idea of the pragmatic theory was that truth is wherever our reasons lead us in the limit – however, not any possible reasons which may lead us anywhere, but only the reasons we can actually receive in our world, however it may turn out to be. That is, truth is wherever true reasons lead us in the limit. Again, we have to postulate an appropriate sensitivity of our structure of reasons. That is, we should minimally postulate that for each true empirical proposition a posteriori there is at least one true inductive reason. We might call this the basic principle of pragmatic truth.

Note that this principle obviously strengthens the basic empiricist principle that for each proposition there is at least one inductive reason; it adds the leaning towards truth. And again, it is quite obvious. How could a proposition turn out true if there were not a single true reason speaking in its favor? Or in Putnam's terms: how could such a proposition ever become part of the ideal theory?

However, the basic principle of pragmatic truth is also pretty trivial. If I were to sell it as an exciting insight, one would have every right to be disappointed. That's not the point, though. The point that I find interesting is the status of that basic principle of pragmatic truth. Obviously, it is a principle about both, truth and rationality, and about their relation. Hence, it might be perceived in two ways.

It might be conceived as a principle of rationality strengthening the principles mentioned before. As such, it would be an a priori principle, as explained above. This is how reasons must be structured, if we are to be able to detect and to believe in truths. In this perspective it again contributes to Kant's conditions of the possibility of experience.

Or it might be conceived as a principle about truth. Clearly, it cannot serve as a definition of pragmatic truth; it is just a postulate about truth. As such, however, it has a conceptual ring. We do not understand what truth could be if that principle were violated. And so, again, it has an a priori status.

The best perspective is to see the principle as connecting truth and epistemic rationality. If we want to characterize pragmatic truth, we have to refer to epistemic

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[1] There certainly are many attempts to close this gap. [26, ch. 8] is a prominent example. Of course, my negative verdict would require longer argument.

rationality. And if we are to explore epistemic rationality, we must not stop with the basic axioms of ranking theory, not with its rules of rational belief change, not even with the basic empiricist principle and its cognates. We can and must strengthen our conception of rationality by reversely referring to the notion of pragmatic truth.

If this paper has any lesson, then it is this point about the inevitable interdependence of truth and rationality. I have not seen it so explicitly stated in the literature, even though I am sure it has been grasped before.

And I am not disturbed by the triviality of the basic principle of pragmatic truth. It is often difficult to distinguish between philosophical depths and platitudes. One may even see a philosophical task in transforming apparent depths into platitudes.

The more important point, though, is that this principle is only the beginning of a constructive research program. I have only stated the very first principle, which is obviously quite weak. I believe that it may be strengthened in convincing ways, for instance to a principle postulating the existence of what I call ultimately stable reasons. The latter then turns out to be provably equivalent to a weak principle of causality[1].

So far, these are global principles: somewhere in the ocean of propositions we always find a reason. However, it should be possible to be more specific and to find more local principles. Our concepts include to some extent where to look for reasons for what. If we succeed in this, we should also be able to give more bite to so-called inferentialism as developed by Brandom [27]. After all, his central, but quite elusive notion of a material inference seems to find an adequate explication in my notion of a reason. However, I admit that I have not carried out this localization of the global principles; this remains to be a strong desideratum. In any case, I would like to emphasize: if there really is a constructive research program, then in virtue of the fact that the notion of a reason finds a precise and theoretically exploitable explication in ranking theory.

5. Some Worries

I hope I have explained my central point as well as it could be done on a few pages: the interdependence of truth and rationality. Still, one may well doubt that the pragmatic theory deserves to be called a theory of truth of its own. Let me finally briefly address three concerns that are often raised in the literature.

First, it has been objected to Putnam that his notion of an ideal theory presupposes the notion of truth. Of course, the ideal theory is the true theory, one might say, true in an antecedently given, presumably correspondence theoretic sense. If this were so, the entire approach would be doomed. However, I think I have made clear that we can avoid any such reference to an antecedently given notion of truth. The ideal theory, if we stick to that term, is characterized within the entanglement of truth and rationality, where truth is taken in no other than the pragmatic sense.

A second concern is whether the pragmatic stance really offers a theory of truth. More precisely, the worry is this: Usually, logic is characterized as stating the basic laws of thought. However, Gottlob Frege, the founder of modern logic,

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[1] All of this is elaborated in [1, sect. 17.3–4] and informally explained in [25].

reminded us that there is something even more fundamental, namely the laws of truth, from which the laws of thought derive[1]. So, does pragmatic truth really satisfy the laws of truth?

The critical issue is disjunction. Epistemically, it is a very common situation that we believe in a disjunction *A*-or-*B*, but have no idea which of the disjuncts *A* and *B* obtains. By contrast, a disjunction *A*-or-*B* can only be true, if at least one of the disjuncts is true; truth cannot be unopinionated. More specifically, in epistemic theories such as the pragmatic one, there seems to be a problem about the law of excluded middle "*A* or not-*A*", since we may apparently be forever unjustified in asserting *A* and in asserting non-*A*. Intuitionistic logic has therefore abandoned the law of excluded middle.

However, as I have explained the pragmatic theory of truth, this consequence does not threaten, or so it seems to me. The basic principle of pragmatic truth postulated that, if *A* is true, there will be true reasons for *A* and, hence, against non-*A*. This entails that every disjunction will be resolved in the limit. Of course, this very sketchy argument should be carefully checked[2].

Finally, a notion of truth should be objective in some sense. In the beginning of this paper I ridiculed the idea of truth for you and truth for me. However, is the pragmatic theory any better? Why shouldn't your limit of inquiry not widely diverge from my limit? A good question, to which I have only a partial answer.

First, I would like to emphasize that, if we are to get any objectivity, we need to appeal to the limit of inquiry. At each finite state of inquiry we may find arbitrary disagreement and arbitrary error. Therefore, no consensus theory of truth will do in any finite time, even if the consensus is reached in free and sovereign dialogue. This is so simply because any finite evidence may be misleading for everyone. This can change only in that counterfactual limit of inquiry referred to in the pragmatic theory.

But is the situation actually different in the counterfactual limit of inquiry? Peirce had the idea that objective reality will enforce agreement upon us in the limit; recall my quote above that truth is "fated to be ultimately agreed to by all who investigate". However, this idea may obstruct the pragmatic project. Objective reality may be an ontological explanation of agreement within the external third-person perspective, but the pragmatic theory must attempt to secure it by internal conditions on the epistemological first-person perspective.

Is this feasible? I am not sure. In the Bayesian context, we have theorems about agreement in the limit. That is, if we all rationally start with a symmetric probability distribution regarding some empirical field governed by some statistical law, and if we satisfy some further rationality requirement, then evidence will lead us to agree on the right statistical law, however diverging our starting points otherwise. This is what Bruno de Finetti's famous representation theorem entails. This theorem can be carried over to ranking theory[3]. So, there is at least partial success. I

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[1] This is Frege's famous antipsychologistic turn. Cf., e.g., [28, p. XVI].

[2] In discussion, Richard Bradley has raised the opposite point. There may also be too many reasons (and counter-reasons) resulting in suspense of judgment.

[3] This is elaborated in [1, sect. 12.5]. A different kind of approach to ranking theoretic limit theorems is taken by Huber [29].

would like to think that it can be generalized far beyond the restricted setting of those theorems. However, this is a mere conjecture so far.

Clearly, there remains a lot of work to do. For now, though, I have sufficiently rolled around Sisyphus' stone. If this paper has outlined at least some useful and not so familiar paths, I would already be content.

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TRUTH AND RATIONALITY

This paper is about the pragmatic notion of truth, according to which what we believe in the ideal limit of inquiry is true. Hence, it refers to the dynamics of belief and thus to theoretical rationality. Thereby, truth and rationality are inexorably entangled; neither can be explained without the other. The paper intends to make plausible that this entanglement may be developed into rigorous and fruitful theory.