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W. Tyler Johnson

Utah State University

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ON DESCARTES' PRESUPPOSITIONLESS PHILOSOPHY

W. Tyler Johnson

Utah State University

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The history of human thought seems to be a quest for truth. Each looking for some evidence of a higher law, the biologist looks at living tissue, the chemist looks in the molecule, and the physicist looks inside the atom while the mathematician looks beyond matter and the theist looks toward God. Uncertainty and ignorance have traditionally been despised and rejected in favor of Knowledge and Rigor by all such scientists. René Descartes is commonly understood to be the father of this modernism as he was the first to replace the Church and its authoritarianism with a belief in the ability of the individual to independently reason and discover truth.

Descartes abhorred uncertainty. He deplored the inexactness and the poor reasoning found among his contemporaries. Feeling that there were indeed things about which one could be certain, he embarked on a journey to find them:

From my childhood I lived in a world of books, and since I was taught that by their help I could gain a clear and assured knowledge of everything useful in life, I was eager to learn from them. But soon as I had finished the course of studies which usually admits one to the ranks of the learned, I changed my opinion completely. For I found myself saddled with so many doubts and errors that I seemed to have gained nothing in trying to educate myself unless it was to discover more and more fully how ignorant I was...this is why I gave up my studies entirely as soon as I reached the age when I was no longer under the control of my teachers..[and] I eventually reached the decision to study my own self, and to employ all my abilities to try to choose the right path (Discourse on Method, p5-7).

The aim was to construct a presuppositionless philosophy--a system so rigorous that it could not be rejected by any clear-headed man. Realizing that he undoubtedly held as true many false ideas, Descartes resolved to discard everything and start anew. No longer would he rely on "facts" that he was taught in school; he would reject history, biology, physics, mathematics, philosophy, and even his own memory of past experiences. In their place he would establish a new (correct) knowledge structure by creating and religiously following a comprehensive, yet simple procedure for establishing truths. He began thus:

So I thought that instead of the great number of precepts...I would have enough with the four following ones, provided that I made a firm and unalterable resolution not to violate them in even a single instance.

- 1) The first rule was never to accept anything as true unless I recognized it to be evidently such: that is, carefully to avoid precipitation and prejudgment, and to include nothing in my conclusions unless it presented itself so clearly and distinctly to my mind that there was no occasion to doubt it.

- 2) The second was to divide each of the difficulties which I encountered into as many parts as possible, and as might be required for an easier solution.
- 3) The third was to think in an orderly fashion, beginning with the things which were simplest and easiest to understand, and gradually and by degrees reaching toward more complex knowledge, even treating as though ordered materials which were not necessarily so.
- 4) The last was always to make enumerations so complete, and reviews so general, that I would be certain that nothing was omitted (Discourse on Method, p12).

The string that binds these four precepts together is the Cartesian Maxim. It can be briefly stated as follows: "I will not accept any source of information that has proven to be defective in the past." Conjoining these, Descartes claims he has constructed a flawless methodology and accordingly expects to produce a new paradigm that would quickly yield much better results than the old. However, even the slightest deviation from any ingredient of this recipe would leave one just as susceptible to errors as before. Absolute adherence in every instance is imperative.

1. THE ARGUMENT OF DREAMS

Descartes presents an argument that has since caused considerable difficulty in all branches of philosophy: the Argument of Dreams. The argument starts innocently enough: "Often times in the past I have had dreams that were so vivid that there were no conclusive signs that would permit me to distinguish them from

waking experiences" (First Meditation). But it ends by viciously attacking all sensory and memory ideas.

For example, suppose a person was dinning with the Prime Minister of England. Perhaps he might notice the succulent taste of the meat, or the peculiar way in which the Prime Minister was holding his knife. Irrespective, however, of the details noticed (quantity, quality, or otherwise), it seems as though there is no conclusive test to determine whether or not the experience actually happened since the "reality" of the sensation could just as easily be attributed to the vividness of a dream. Furthermore, even if it was assumed that he was awake, it is difficult to determine whether or not the incident was akin to a mirage--an experience stemming wholly or in part from inaccurate sensory input and/or faulty cognitive processing. René Descartes had been deceived about his own senses (both waking and sleeping) so he was, by the newly established Cartesian Maxim, forced to abandon all forms of sensory information.

Memory is just as questionable. Often times people remember an event, acting as though it actually happened, when in fact it was only a dream. Yet at other times they may recall some "fact" which is actually false: some people "remember" that 6 times 9 is 52; others "remember" that the capital of Alaska is Anchorage; others "remember" eating with the Prime Minister. These memories are mistaken. René Descartes had been similarly deceived about his own

memories so he was, again by the Cartesian Maxim, forced to abandon all memories, irrespective of the clarity with which they were held.

Descartes' entire thesis assumes that it is possible to proceed from his four maxims up to a rigorous, solid system through a priori, analytic reasonings. He desperately wants to make this new system at least as meaningful and as exact as geometry. But curiously, there is a significant problem that Descartes completely fails to address.

It is in fact the case that even in the most constrained environments, mistakes are made. Descartes made several significant errors himself (his explanation of the workings of the heart, for example). If it is even reasonable to suppose that he discovered errors in his earlier theories which he initially held as true (a revision of a previous publication would suffice), then, to be consistent with his own methodology, Descartes would have to apply the Cartesian Maxim at this juncture also and not only quit accepting his rational mind as a trustworthy source of information, but he must also eliminate all things he previously deduced and/or inferred through his cognitive powers. Consider Descartes' own assessment of his reasoning abilities:

What pleased me most about this method was that it enabled me to reason in all things, if not perfectly, at least as well as was in my power. In addition I felt that in practicing it my mind was gradually becoming accustomed to conceive its objects more clearly and distinctly (Discourse on Method, p14).

From this implication that his personal reasoning abilities are able to improve but are strictly limited by perfection, one could reasonably infer that he acknowledges that he presently is capable of making mistakes no matter how "clear and distinct" he may otherwise perceive them at some time. It must then follow that the mind is no more trustworthy than the senses.

The Dream Argument in conjunction with the Cartesian Maxim necessarily forces one to reject all sensory information, all memories (this is without regard to the time they were conceived to have occurred), and all deductions, inductions, and inferences of the mind. But to eliminate these things is to eliminate the very essence of man. Without them all hope is eliminated--the scientist, the seeker of truth, and even the theist is left completely destitute in an abyss so great that there is absolutely no hope of ever overcoming it. Both science and religion necessarily come to a grinding halt.

Concerning this the rational man must ask himself whether or not he could really accept these conclusions. Whether or not he could really choose to live a life in which he could be certain of nothing (Descartes could not even be sure, for example, of his own existence since he arrived at that conclusion using potentially tainted cognitive notions). Descartes' methodology eternally condemns everyone to a state of absolute epistemological hopelessness since the very act of searching obliterates any and all possible chance of ever obtaining the desired Plateau of

Knowledge. This is manifest Skepticism. A very unnerving philosophy to live by in a scientific age.

2. THE "RIGOR" OF MATHEMATICS

Descartes was deeply mistaken in his perception of geometry. He operated under the assumption that geometry was somehow more exact, more precise than the other sciences:

Considering that among all those who have previously sought truth in the sciences, mathematicians alone have been able to find some demonstrations, some certain and evident reasons, I had no doubt that I should begin where they did (Discourse on Method, p13).

But modern mathematicians do not often claim to be particularly better or more exact in their work than other scientists. For as a matter of course, mathematicians do not even claim their work to be true. They assuredly are pleased whenever some other scientist stumbles onto an application for their work, but the very nature of some of the work currently being undertaken in mathematical research often makes them presume that it will never be applicable in the finite dimensional, discrete world man occupies. Furthermore, it is worthwhile to note that there is not just one branch of learning called mathematics. Indeed, there are several disjoint (and hence independent), highly specialized sub-fields. In each of these systems it is usually easy to demonstrate (prove) that some

of the other systems are false (that they are concurrently incompatible with the given system of reference).

Mathematics is not presuppositionless. Every particular branch of mathematics is built upon some framework of axioms. It is from these axioms that it is possible to prove specific conjectures and hypotheses. The work horses of mathematics are theorems, corollaries, and lemmas. The axioms, in and of themselves, provide no insight and certainly no knowledge for the mathematician. It is crucial to recognize that although a theorem could properly be labeled as true or false depending on the axiomatic system upon which it is presented, it is entirely inappropriate to regard any of the axioms as true for they are foundationless by definition (a person who calls an axiom true is confusing its notion with that of, say, a lemma). Any statement could be considered axiomatic and a system of knowledge, no matter how bizarre, could logically be built upon it (different systems could easily rely on different forms of logic--I find it possible to conceive of a logical system in which contradictions are acceptable and perhaps even a system in which tautologies/identities are patently false). The only criteria mathematicians have for accepting some particular set of axioms is whether or not it is useful (cognitively, empirically, or otherwise) or whether or not it is interesting (for example, the real number line which has proven to be incredibly useful and interesting in and of itself is uniquely identified by a system of four

very simple axiomatic statements: 1) it can be linearly ordered 2) it is infinite 3) it is connected 4) it is separable). Systems that are both useful and interesting are the most commonly studied.

Geometricians, in spite of their best efforts, have published, even after passing the most scrutinizing review boards, particular proofs that have later been shown false. But it is not just those of "feeble intellect" who have made such errors as Descartes alleged. Some of the greatest minds ever to have studied the subject have held certain proofs or theories to be true only to have them later demonstrated false. Things can in general be shown false, but to show that something is actually true is essentially impossible--it is much safer to say that "I have yet to find a counter-example to indicate its falsehood" than to claim that "This is true." Similarly, it is usually better to say that "I have not yet been clever enough to solve this problem" than to brashly assert that "This problem is unsolvable."

3. RIEMANN'S REARRANGEMENT THEOREM

Georg Friedrich Riemann (1826-1866) was a German mathematician who made fundamental contributions to calculus and is perhaps best known for the Riemann Integral. A result of his which is comparatively unknown is a theorem he proposed and later proved which is now known as Riemann's Rearrangement

Theorem. Up to this point in mathematical history, addition was considered to be a strictly commutative operation ($a+b=b+a$). But because of Riemann's work, it is now known that there are times in which addition is not commutative; there are times in which the order that numbers are added makes a *significant* difference in the final sum. Riemann's theorem essentially states that given any conditionally convergent (infinite) series of real numbers ($\sum_{n=1}^{\infty} x_n = x_1 + x_2 + \dots + x_n + \dots$) there exists a rearrangement of the original sequence that will sum to any *arbitrary* fixed real number. It is not that the order matters just a little, but that in fact the series can be made to sum to any desired number. This is a very surprising result in mathematics, yet one that is easily proven. It makes mathematicians very wary about conjecturing the "obvious" without accompanying it with a sound proof.

There is a common tendency among problem solvers of all types to solve a problem through the understanding of its parts. Perhaps this started with Descartes when he proposed the second and third of his four propositions (see page 3): "The second was to divide each of the difficulties which I encountered into as many parts as possible, and as might be required for an easier solution. The third was to think in a orderly fashion, beginning with the things which were simplest and easiest to understand, and gradually and by degrees reaching toward more complex knowledge." And intuitively this does seem to be a very reasonable approach. Its use has been demonstrated time and time again in problems of finite

complexity and scope. But what assurance is there that it will work with problems that are infinitely complex? Descartes proposes the use of this approach, but in light of Riemann's Rearrangement Theorem, it seems best to very cautious about it. Peculiar, unexpected results happen towards infinity.

4. THE AXIOMATIC PHILOSOPHY

The notion of a presuppositionless philosophy, though initially appealing, is fundamentally flawed. Every line of argument must start somewhere. If only the conclusion is given with the assertion that it is in some way right or correct, then it is valid to ask why it is true. If some sort of a rational explanation is given, then it can be clearly seen that there are indeed presuppositions (premises) for the argument. But if no justification is given, then one is not being rational in the normal sense of the word. Attempts to claim that certain "self-evident" facts need no justification is not fair and is furthermore not appropriate for under such a practice one could purport anything--"[the] lunatics...affirm that they are kings while they are paupers, that they are clothed in gold and purple while they are naked" (Meditations on First Philosophy, p18). But this, as Descartes points out, "is ridiculous" (Meditations, p18). People hold many different views and to allow each of them to maintain that their personal ideas which they hold as "self-evident" are in fact "true" leads to major problems with regard to the consistency

of Truth since such held ideas are frequently in opposition. Belief in an absolute truth (a nonrelativistic world) is inconsistent with allowing individuals the right to label something as presuppositionlessly true. Not even the entire population acting unanimously would have this right.

Certainly the rational man would want to build up some sort of axiomatic framework (system) to support his conclusions. But he must be very careful to avoid two common pitfalls. The first is that one's axioms are true, ideal, or in some way perfect. This cannot be the case since, by definition, axioms have no foundation (so, curiously, although they cannot be True, they likewise cannot be False). The second mistaken tendency is to infer that one's system is somehow better than another's. For essentially the same reasons, this is not possible. In comparing one framework to another, the best that can really be said is that one is perhaps more useful or more interesting than the other (all that this really means is that one is more compatible to some other system held as a standard).

It is rational for a person to accept belief as axiomatic and build upon it (but not to attach any level of "rightness" to it). To exist we must. Descartes did it. To abandon everything, truly everything would necessitate that one starts over as a little child, remembering nothing, with completely blank thinking patterns, habits, and logic. A new neural network. But he would be no better off than before--all other things being held constant, the end result would be exactly the

same. A better approach would be to rationally examine the world (life) and determine which things seem to be "true." Determine the core group of things that seem to make sense. Make them axiomatic. Derive from them theorems of logic, of morality, of knowledge. If later in life problems arise (internal or external contradictions), then it is clear that an error was made in the derivation of some theorem from the axiomatic foundation, or maybe one or more of the axioms were weak or incorrect and should be modified and/or replaced. Make the necessary changes and all other necessary changes that surface thereafter until complete "harmony" is achieved. The neat thing about this is that it allows one to make mistakes and it allows one to error, but it still provides a way to continue the quest for truth without having to (necessarily) start over from the very beginning. Descartes' system does not allow for this. He is rigidly unforgiving.