

What is the relation between Philosophy and Science?

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I began to think it probable that philosophy had erred in adopting heroic remedies for intellectual difficulties, and that solutions were to be found merely by greater care and accuracy. This view I have come to hold more and more strongly as time went on, and it has led me to doubt whether philosophy, as a study distinct from science and possessed of a method of its own, is anything more than an unfortunate legacy from theology.

(Bertrand Russell, "Logical Atomism", 1924)

Naturalism: the recognition that it is within science, and not in some prior philosophy, that reality is to be identified and described. (W. V. Quine, "Things and Their Place in Theories", 1981)

Philosophy is not one of the natural sciences.

(The word "philosophy" must mean something which stands above or below but not beside the natural sciences.).

(Ludwig Wittgenstein, *Tractatus Logico-Philosophicus*, 1922)

Plan

1. Philosophical Naturalism: The view that Philosophy is continuous with science
 - Russell and Quine;
 - but also ancient cosmologists, including
 - Thales (originating principle of nature is water)
 - Anaximander (endless primordial mass is the originating principle)
 - Democritus (atomist)

2. How can philosophy be distinct from science? What sort of method can philosophy employ that is distinct from the methods of science? What sort of insights (if any) can philosophy obtain into the nature of reality? One view is that philosophy is concerned with the nature of thought; and that by examining the conditions of thought, we engage in an enterprise that is prior to, and more fundamental than, any special science.
 - Parmenides
 - Berkeley
 - Kant
 - Wittgenstein

Philosophy aims at the logical clarification of thoughts. Philosophy is not a body of doctrine but an activity. A philosophical work consists essentially of elucidations. Philosophy does not result in 'philosophical propositions', but rather in the clarification of propositions. (Wittgenstein, *Tractatus*)

In this capricious world, nothing is more capricious than posthumous fame. One of the most notable examples of posterity's lack of judgment is the Eleatic Zeno. This man, who may be regarded as the founder of the philosophy of infinity, appears in Plato's *Parmenides* in the privileged position of instructor to Socrates. He invented four arguments, all immeasurably subtle and profound, to prove that motion is impossible, that Achilles can never overtake the tortoise, and that an arrow in flight is really at rest. After being refuted by Aristotle, and by every subsequent philosopher from that day to our own, these arguments were reinstated, and made the basis of a mathematical renaissance, by a German professor, who probably never dreamed of any connection between himself and Zeno.

Zeno was concerned ... with three problems.... These are the problems of the infinitesimal, the infinite, and continuity. To state clearly the difficulties involved, was to accomplish perhaps the hardest part of the philosopher's task. This was done by Zeno. From him to our own day, the finest intellects of each generation in turn attacked the problems, but achieved, broadly speaking, nothing. In our own time, however, three men—Weierstrass, Dedekind, and Cantor—have not merely advanced these three problems, but have completely solved them. The solutions, for those acquainted with mathematics, are so clear as to leave no longer the slightest doubt or difficulty. This achievement is probably the greatest of which our age has to boast; and I know of no age (except perhaps the golden age of Greece) which has a more convincing proof to offer of the transcendent genius of its great men. Of the three problems, that of the infinitesimal was solved by Weierstrass; the solution of the other two was begun by Dedekind, and definitively accomplished by Cantor. (Russell, 1901)

It was formerly supposed that infinite numbers, and the mathematical infinite generally, were self-contradictory. But as it was obvious that there were infinities—for example, the number of numbers—the contradictions of infinity seemed unavoidable, and philosophy seemed to have wandered into a “cul-de-sac”. This difficulty led to Kant’s antinomies, and hence, more or less indirectly, to much of Hegel’s dialectic method. Almost all current philosophy is upset by the fact (of which very few philosophers are as yet aware) that all the ancient and respectable contradictions in the notion of the infinite have been disposed of once and for all. (Russell, 1901)

Logic has made, during the last sixty years, greater advances than in the whole previous history of mankind. These advances have all been made by men whose training was predominantly scientific or mathematical, and have been opposed or ignored by orthodox philosophers. ... [O]fficial academic philosophy, now as at the time of the Renaissance, is engaged in the endeavour to keep alive an antiquated technique, and to ignore the new knowledge which is rendering old problems trivial. Philosophy is associated traditionally with two studies with which it has no essential affinity, namely theology and Greek. If it is to become vital to our universities, it must come to be associated instead with science. But it would be almost as difficult to effect such a change as to carry it through the Social Revolution. (Russell, 1920)

I found that many of the stock philosophical arguments about mathematics (derived in the main from Kant) had been rendered invalid by the progress of mathematics in the meanwhile. Non-Euclidean geometry had undermined the argument of the transcendental aesthetic. Weierstrass had shown that the differential and integral calculus do not require the conception of the infinitesimal, and that, therefore, all that had been said by philosophers on such subjects as the continuity of space and time and motion must be regarded as sheer error. Cantor freed the conception of infinite number from contradiction, and thus disposed of Kant's antinomies as well as many of Hegel's. Finally, Frege showed in detail how arithmetic can be deduced from pure logic.... As all these results were obtained, not by any heroic method, but by patient detailed reasoning, I began to think it probable that philosophy had erred in adopting heroic remedies for intellectual difficulties, and that solutions were to be found merely by greater care and accuracy. This view I have come to hold more and more strongly as time went on, and it has led me to doubt whether philosophy, as a study distinct from science and possessed of a method of its own, is anything more than an unfortunate legacy from theology. (Russell, 1924)

[I am] one who regards thought as merely one among natural processes, and hopes that it may be explained one day in terms of physics. ... For my part, I do not regard the problem of meaning as one requiring such special methods as are commonly called “philosophical”. I believe that there is one method of acquiring knowledge, the method of science; and that all specially “philosophical” methods serve only the purpose of concealing ignorance. ... Now meaning is an observable property of observable entities, and must be amenable to scientific treatment. My object has been to endeavour to construct a theory of meaning after the model of scientific theories, not on the lines of traditional philosophy. (Russell, “The Meaning of ‘Meaning’”, 1920)

My own belief is that most of the problems of epistemology, in so far as they are genuine, are really problems of physics and physiology; moreover, I believe that physiology is only a complicated branch of physics. (Russell, “Vagueness”, 1923)

Philosophy, like all other studies, aims primarily at knowledge. The knowledge it aims at is the kind of knowledge which gives unity and system to the body of the sciences, and the kind which results from a critical examination of the grounds of our convictions, prejudices, and beliefs. But it cannot be maintained that philosophy has had any very great measure of success in its attempts to provide definite answers to its questions. If you ask a mathematician, a mineralogist, a historian, or any other man of learning, what definite body of truths has been ascertained by his science, his answer will last as long as you are willing to listen. But if you put the same question to a philosopher, he will, if he is candid, have to confess that his study has not achieved positive results such as have been achieved by other sciences.

It is true that this is partly accounted for by the fact that, as soon as definite knowledge concerning any subject becomes possible, this subject ceases to be called philosophy, and becomes a separate science. The whole study of the heavens, which now belongs to astronomy, was once included in philosophy; Newton's great work was called 'the mathematical principles of natural philosophy'. Similarly, the study of the human mind, which was a part of philosophy, has now been separated from philosophy and has become the science of psychology. Thus, to a great extent, the uncertainty of philosophy is more apparent than real: those questions which are already capable of definite answers are placed in the sciences, while those only to which, at present, no definite answer can be given, remain to form the residue which is called philosophy. (Russell, *The Problems of Philosophy*, 1912)

Aristotle was among other things a pioneer physicist and biologist. Plato was among other things a physicist in a way, if cosmology is a theoretical wing of physics. Descartes and Leibniz were in part physicists. Biology and physics were called philosophy in those days. They were called natural philosophy until the nineteenth century. Plato, Descartes, and Leibniz were also mathematicians, and Locke, Berkeley, Hume, and Kant were in large part psychologists. All these luminaries and others whom we revere as great philosophers were scientists in search of an organized conception of reality. Their search did indeed go beyond the special sciences as we now define them; there were also broader and more basic concepts to untangle and clarify. But the struggle with these concepts and the quest for a system on a grand scale were integral still to the overall scientific enterprise. The more general and speculative reaches of theory are what we look on nowadays as distinctively philosophical. What is pursued under the name of philosophy today, moreover, has much these same concerns when it is at what I deem its technical best. (Quine, "Has Philosophy Lost Contact with the People?", 1979)

Parmenides: An argument from the nature of thought to the nature of reality

And the benevolent goddess welcomed me, and took with her hand
my right hand, and so she spoke to me: ...

It is necessary that you learn
both the solid hearth of well-rounded Truth
and the opinions of mortals, in which there is no real certainty.

Come now, and I will tell you (and you must carry my account with you when you
have heard it) the only ways of enquiry that are to be thought of.

The one, that [it] is and that it is impossible for [it] not to be, is the path Persuasion
(for she attends upon Truth);

the other, that [it] is not and that it is needful that [it] not be, that I declare to you
is an altogether indiscernible track:

for you could not know what is not—that cannot be done—nor indicate it.

Parmenides: We cannot think of what is not

If I think of A, then A is

What is there to be said and thought must needs be.

For never shall this be forcibly maintained,
that things that are not are,
but you must hold back your thought from this way of enquiry, not let habit,
borne of much experience, force you down this way,
by making you use an aimless eye or an ear and a tongue full of meaningless sound:
Judge by reason the strife-encompassed refutation spoken by me.

There still remains just one account of a way, that it is.
On this way, there are very many signs, that being uncreated and imperishable it is,
whole and of a single kind and unshaken and perfect.

Montgomery Furth's Interpretation of Parmenides

So let us imagine Betathon, for example, telling Parmenides the results of his 'enquiry' so far into 'what is' in the sense of existence, of what *there* is; thus, as giving an account of what does and what does not fall within his ontology. The following dialogue ensues:

BETATHON: Lions are.

PARMENIDES : [silent]

BETATHON: Electrons are.

PARMENIDES : [silent]

BETATHON: Centaurs are not.

PARMENIDES: Thou canst not be acquainted with what is not, nor indicate it in speech.

BETATHON: [expresses bafflement] PARMENIDES : Either they (= centaurs) are, or they are not. [If they are, then in saying they are not you speak falsely.] If they are not, then you speak of nothing, for what is not, what does not exist, is the same as nothing. But this is utterly unintelligible ('inscrutable') ; thou shalt find no thought that is not of what is (= something that is), in relation to which it is said (uttered) ; what can be thought or spoken of must be; what is not (= nothing) is both unthinkable and unnameable, not being there to be thought or named.

BETATHON: Lions are fierce.

BETATHON : Zeno is a fool.

BETATHON: Betathon is not flying.

PARMENIDES: [silent]

PARMENIDES: [silent, if restive]

PARMENIDES: Thou canst not be acquainted with what is not, nor indicate it in speech)

BETATHON : [expresses bafflement]

PARMENIDES: Either this (--- the fact of Betathon's flying, or the presence of flying in Betathon, or what you will) is, or it is not. [If it is, then you speak falsely]. If it is not, then you speak of nothing, for what is not, what does not obtain (etc.), is the same as nothing, etc.

BETATHON: Trees are.

PARMENIDES : [silent]

BETATHON: Lizards are.

PARMENIDES: You're repeating yourself.

Betathon, not unnaturally, is baffled.

BETATHON: I said that something *different* was,
the second time.

PARMENIDES: How, 'different'?

BETATHON: Clearly, trees are different from lizards.

PARMENIDES: An example, please.

BETATHON : Henry, here, is a lizard.

PARMENIDES: [silent]

BETATHON: And is not a tree.

PARMENIDES: Thou canst not be
acquainted with what is not, nor
indicate it in speech.

There still remains just one account of a way, that it is.

On this way, there are very many signs, that being uncreated and imperishable it it,
whole and of a single kind and unshaken and perfect. (Parmenides)

Thus far Parmenides, as I have represented him, has engaged in no ontologizing of his own; he has rather employed a certain set of dialectical methods upon that of Betathon, and by implication, of all humans. But no one could suppose that Parmenides could get this far and the ontological significance of the foregoing still be lost on him. And so it proves; he states an ontology, the first 'really correct' one. It is very short. We know, now, that

Of what is, only one thing can be said,

or we know that every true statement about what is necessarily says the same as every other; we are misled no longer by the various-sounding chatter that continues to assail our noise-filled ear. Perhaps guided by some such principle as

That of which only the same can be said is the same,

we inevitably arrive at the conclusion

There is one thing, viz., what is. ...

This statement differs *tote caelo* from any offered before about the nature of the world, since it is based, not on scattered and unreliable observations (moisture goes with living things, ergo everything is really water), but on an analysis, of the utmost generality, of the limits of the sayable, hence the thinkable. And now the statement, formerly the abbreviation for innumerable particular statements (as we used to distinguish them) about lions and lizards:

The only true thought is the thought that it is,

becomes in its way a first-order statement also, the same as that last before displayed.

(Furth, "Eleatic Ontology")

Given what has gone before, derivation of the rest of Parmenides' view is fairly routine.

(a) There is no coming-to-be (B 8.3, 6-21). If we split the fused notion of being, then there is no coming-to-exist, nor coming-to-be- ϕ ; for in neither case can one intelligibly describe the previous situation, when the thing in question did not exist, or was not ϕ .

(b) There is no ceasing-to-be. Parallel reasoning.

(c) The universe (= what is) as a whole has no beginning or end. From (a) and (b).

It never was nor will be, since it is now, all together, one, continuous. For what birth will you seek for it? How and whence did it grow? I shall not allow you to say nor to think from not being: for it is not to be said nor thought that it is not Thus it must either be completely or not at all. Nor will the force of conviction allow anything besides it to be ever from not being. Therefore Justice has never loosed her fetters to allow it to come to be or to perish, but holds it fast. And the decision about these things lies in this: it is or it is not. But it has in fact been decided, as is necessary, to leave the one way unthought and nameless (for it is no true way), but that the other is and is genuine. And how could what is be in the future? How could it come to be? For if it came into being, it is not: nor is it if it is ever going to be in the future. Thus coming to be is extinguished and perishing is unheard of. (Parmenides)

(d) It is a single continuous solid mass (B 4.1-4, 8.5-6, 22-33). For there is no 'being rather here than there' in the existential sense of 'being.' It is also wholly saturated with every property, since there is no 'being rather here than there' predicatively either.

(e) It is temporally continuous and indivisible also; "it will be" and "it was" (both existential and predicative) are merely further bad ways of pronouncing "it is."

(f) There is no change, e.g. of place or bright color (B 8.37-41). Change is ceasing to be ϕ and coming to be ϕ .

(g) It is spherical, or like a sphere (B 8.42-49). The reason given is that otherwise it would 'be more' in one direction than another.

Therefore it is right that what is should not be imperfect; for it is not deficient—if it were it would be deficient in everything. The same thing is there to be thought and is why there is thought. For you will not find thinking without what is, in all that has been said. For there neither is nor will be anything else besides what is, since Fate fettered it to be whole and changeless. Therefore it has been named all the names which mortals have laid down believing them to be true—coming to be and perishing, being and not being, changing place and altering in bright colour. But since there is a furthest limit, it is perfected, like the bulk of a ball well-rounded on every side, equally balanced in every direction from the centre. For it needs not be somewhat more or somewhat less here or there. For neither is it non-existent, which would stop it from reaching its like, nor is it existent in such a way that there would be more being here, less there, since it is all inviolate: for being equal to itself on every side, it lies uniformly within its limits. Here I end my trustworthy discourse and thought concerning truth; henceforth learn the beliefs of mortal men, listening to the deceitful orderings of my words. (Parmenides)

Parmenides

“A is not”

is either false or meaningless.

He then takes this to imply that

“A is not F” (Socrates is not flying)

Is also either false or meaningless, since this can be re-phrased as “A-being-F is not” (Socrates-flying is not; or that Socrates flies is not).

And from this he comes to hold that there can be no change (since change involves an entity A having a property F at one time and not having that property at another time).

Further, he holds that

“A is not B” (A is distinct, different, from B)

is either false or meaningless, since this can be re-phrased as “A-being-identical-with-B is not” (Socrates-being-identical-with-Cleopatra is not; that Socrates is Cleopatra is not). And from this he concludes that there can't be distinct entities.

Question: Given his assumptions, is Parmenides right to conclude that there is no change and that there are no distinct entities? Or is he entitled to conclude only that we cannot coherently think that there is change or that there are distinct entities? What is the difference?

Berkeley's "Master Argument" for Idealism

Dialogues between Hylas and
Philonous, 1713

Philonous... I am content to put the whole upon this issue. If you can conceive it possible for ... any sensible object whatever, to exist without the mind, then I will grant it actually to be so.

Hylas If it comes to that the point will soon be decided. What more easy than to conceive a tree or house existing by itself, independent of, and unperceived by, any mind whatsoever? I do at present time conceive them existing after that manner.

Philonous How say you, Hylas, can you see a thing which is at the same time unseen?

Hylas No, that were a contradiction.

Philonous Is it not as great a contradiction to talk of *conceiving* a thing which is *unconceived*?

Hylas It is.

Philonous The tree or house therefore which you think of is conceived by you?

Hylas How should it be otherwise?

Philonous And what is conceived is surely in the mind?

Hylas Without question, that which is conceived is in the mind.

Philonous How then came you to say, you conceived a house or tree existing independent and out of all minds whatsoever?

Hylas That was I own an oversight; but stay, let me consider what led me into it.—It is a pleasant mistake enough. As I was thinking of a tree in solitary place, where no one was present to see it, methought that was to conceive a tree as existing unperceived or unthought of; not considering that I myself conceived it all the while. But now I plainly see that all I can do is frame ideas in my own mind. I may indeed conceive in my own thoughts the idea of a tree, or a house, or a mountain, but that is all. And this is far from proving that I can conceive them *existing out of the minds of all Spirits*. (DHP 1)

“A is unthought-of”

If I entertain the proposition expressed, it is false; it can't be both thought and true.

Either I am thinking nothing or I am thinking falsely.

It is on this ... that I insist, to wit, that the *absolute existence of unthinking things* are words without a meaning, or which include a contradiction. This is what I repeat and inculcate, and earnestly recommend to the attentive thoughts of the reader. (PHK, §§24)

Question: Given his assumptions, is Berkeley right to conclude that there is sensible object that is unthought-of? Or is he entitled to conclude only that we cannot coherently think of there being a sensible object that is unthought-of? What is the difference?

The Early Wittgenstein and the Limits of Thought

The book deals with the problems of philosophy, and shows, I believe, that the reason why these problems are posed is that the logic of our language is misunderstood. The whole sense of the book might be summed up in the following words: what can be said at all can be said clearly, and what we cannot talk about we must pass over in silence.

Thus the aim of the book is to draw a limit to thought, or rather—not to thought, but to the expression of thoughts: for in order to be able to draw a limit to thought, we should have to find both sides of the limit thinkable (i.e. we should have to be able to think what cannot be thought).

It will therefore only be in language that the limit can be drawn, and what lies on the other side of the limit will simply be nonsense. (Wittgenstein, *Tractatus*, Preface)

The limits of my language mean [bedeuten] the limits of my world. Logic pervades the world: the limits of the world are also its limits. So we cannot say in logic, 'The world has this in it, and this, but not that.'

For that would appear to presuppose that we were excluding certain possibilities, and this cannot be the case since it would require that logic should go beyond the limits of the world; for only in that way could it view those limits from the other side as well.

We cannot think what we cannot think; so what we cannot think we cannot say either. (Wittgenstein, *Tractatus*, 5.6–5.61)

When it comes to "what we cannot think" (for example, objects that lie "outside my world"), we can say nothing. We are not entitled to say that there are no such objects (compare with Parmenides and Berkeley); but we cannot say either that there may be such objects. Instead we can say nothing.

Time and again the attempt is made to use language to limit the world and set it in relief—but it can't be done. The self-evidence of the world expresses itself in the very fact that language can and does only refer to it.

For since language only derives the way in which it means from its meaning, from the world, no language is conceivable which does not represent this world. (Wittgenstein, *Philosophical Remarks*, 1930; *Big Typescript*, (1933))

[What is “itself a space” is] ... not something bordering on something else (from which it could therefore be limited off). And so, something language cannot legitimately set in relief. (Ibid.)

[Language] cannot express what cannot be otherwise. We never arrive at fundamental propositions in the course of our examinations; we get to the boundary of language which stops us from asking further questions. We don't get to the bottom of things, but reach a point where we can go no further, where we cannot ask further questions.... (Lectures 1930)

When I say: Here we are at the limits of language, that always sound as if resignation were necessary at this point, whereas on the contrary, complete satisfaction comes about since no question remains. (*Big Typescript*)