Response to Stephen Hawking and Leonard Mlodinow's Claim that Philosophy is Dead

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Drs. Hawking and Mlodinow claim that:

> "We each exist for but a short time, and in that time explore but a small part of the whole universe. But humans are a curious species. We wonder, we seek answers. Living in this vast world that is by turns kind and cruel, and gazing at the immense heavens above, people have always asked a multitude of questions: How can we understand the world in which we find ourselves? How does the universe behave? What is the nature of reality? Where did all this come from? Did the universe need a creator? Most of us do not spend most of our time worrying about these questions, but almost all of us worry about them some of the time.
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> Traditionally these are questions for philosophy, but philosophy is dead. Philosophy has not kept up with modern developments in science, particularly physics. Scientists have become the bearers of the torch of discovery in quest for knowledge" (*The Grand Design* (hereafter "*GD*"), New York: Bantam Books, 2010, p. 5).

I have nine objections[1] to these claims:

OBJ1: **Have physicists settled *any* philosophical question?** (1st para.) Humans certainly spend time thinking about these questions, and more, including, among other things, what is the nature of reality, what is the nature of knowledge about the nature of reality, the nature of valuation, and reason itself, how should we live, what beauty is, and how language works. Physicists do not concern themselves with these questions, however, but instead focus on the nature and behavior of matter. Thus, even if these authors are correct about physicists' being eventually able to answer these questions (but see other objections – this is a very optimistic assumption), they need to show that philosophers cannot or will not be able to answer (or haven't already correctly answered). If they cannot show this, then philosophy is not dead, but very much alive, attempting to answer these questions. Not only that, but physicists must respond to any objections that philosophers have, or, depending on the strength and relevance of the objection, they will not have answered the questions adequately. Thus, it is not at all clear that science can address the questions of philosophy at all.

Moreover, a claim such as "philosophy has been replaced by science" makes two central assumptions that are far from being obviously true: matter is all that exists in the universe (materialism), and science is the only discipline that can answer questions about material substance. To substantiate their claim, Hawking/Mlodinow must first demonstrate that materialism is true and then must demonstrate that "science" itself has the tools to establish groundwork for physical investigation. It is not at all clear that the scientific method is open to verification from the scientific method. If it is not, then any investigation that proceeds from the scientific method is dependent on epistemology [the claims of which are not empirically verifiable].

OBJ2: **Have physicists (including Stephen Hawking) really answered what the nature of reality is?** (1st para.) **First**, physicists assume that matter exists. There are philosophers such as Berkeley (Hume, Kant, Husserl, et al.) who argue that we cannot escape our perceptions to the point that we can prove that any material thing exists, so we can only know that immaterial things such as ideas, and the minds or souls that have them, exist. No one has refuted Berkeley yet, no matter (pardon the pun) how many people might think he is wrong. **Second**, if there are any questions left in physics, to explain the nature of matter, light, the holes in M Theory, etc., then physics is not finished answering the questions, which implies that they need to make assumptions and try to develop a coherent set of theories to explain their phenomena, which is what at least *some* philosophers do. In fact, Hawking and Mlodinow state that physicists make *arguments* for claims and the reasoning might be wrong (*GD*, 162). This is nothing other than doing philosophy! Thus, physicists are at least

[1] I'd like to thank Dr. Barry Vaughan and Patrice Nango for their comments in order to greatly improve these objections.

in some sense practicing philosophy, and physics depends on philosophy in the sense that one cannot engage in the scientific enterprise without the tools of philosophy. **Third**, if Hawking is correct about everything, other scientists should agree with him, which is obviously not the case. Moreover, his use of what he calls "positivistic philosophy," or pragmatism restricts him from the start from even discussing the nature of truth or reality (since he is only trying to discover which mathematical models help him describe observations made).

OBJ3: **There is no meaningful way in which Hawking and Mlodinow have answered the question about whether the universe needed a creator**. (1st para.) Whether there is one universe or a multi-verse, one can still ask where it all came from, or what caused it. Given that it's possible that God exists (which it is), then whether the universe needed a creator is irrelevant. It seems highly unlikely that science, with explaining perceptible nature as its purview, will be able to show that an immaterial, eternal God does not exist.

OBJ4: **Philosophers of science *do* keep up with modern developments in science, and doing so does not solve philosophical questions**. (2nd para.) **First**, As Bertrand Russell famously said, philosophy is like a drawer that is full of questions marked "Don't know."[2] This is why there is still philosophy. If we had the answers to all of Hawking's questions (and those in OBJ1 and others), then there truly would be no such thing as philosophy. We would *have* knowledge (or wisdom), and not need to love or seek it, as the very word philosophy means (love of wisdom). **Second**, there are competing scientific theories, so keeping up with the latest developments does not in any way settle what the answers are, at least not yet. Because not only do not all physicists agree about the nature of the universe, but philosophers do not agree about it either. From the philosophical perspective, Hawking is no closer to even discovering IF matter exists, with anything that is stated in his book.

OBJ5: **Hawking hasn't defined what knowledge is or what it is of, so how can physicists seek knowledge?** (2nd para.) One of the basic tenets of philosophy is that one must define one's terms. So let us suppose that knowledge is a cognitive state that holds a belief that is highly probably true, but that might be false; under that definition, Hawking might be able to make a claim that he knows something. However, if knowledge requires certainty, where its possessor cannot be wrong about what they know, and the object of knowledge cannot be otherwise and/or is immutable, then it is doubtful that we can obtain such knowledge about physical things, given two things: (1) physical things change, and (2) the nature of science is to continue to discover *more* about the nature of the universe, with which Hawking himself agrees (*The Universe in a Nutshell* (hereafter "*Universe*"), New York: Bantam Books, 2001, p. viii).

OBJ6: **Hawking's claim is inconsistent, given his worldview and statements in another book (*Universe in a Nutshell*)**. (2nd para.) For instance, he states, "Any sound scientific theory, whether of time or of any other concept, should in my opinion be based on the most workable philosophy of science: the positivist approach put forward by Karl Popper and others. According to this way of thinking, a scientific theory is a mathematical model that describes and codifies the observations that we make. A good theory will describe a large range of phenomena on the basis of a few simple postulates and will make definite predictions that can be tested or falsified. If the predictions agree with the observations, the theory survives that test, though it can never be proved to be correct. …. If one takes the positivist position, as I do, one cannot say what time actually is. All one can do is describe what has been found to be a very good mathematical model for time and say what predictions it makes" (*Universe*, 31). He also is aware of Gödel's theorem, which states that, in mathematics, "questions always persist that can neither be proved nor disproved on the basis of the axioms that define the system. In other words, Gödel showed that there are problems that cannot be solved by any set of rules or procedures" (*Universe*, 139). Taking these two quotations together, Hawking is stating that science creates models, which themselves cannot ever be proven true, to create theories, which can never be proved to be correct; so the best that science can do is to attempt to make good predictions. But if we cannot answer the question of whether time actually exists, with physics, then it is not solving the philosophical question of whether time exists, and what its nature is. Thus, philosophy is not dead, and physics has not killed it. Moreover,

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[2] Ophelia Benson quoting Nicolas Fearns noting Russell, *Philosophers Magazine*, Issue 34 (2nd quarter, 2006), p. 88.

physics is not doing its job of accurately describing the nature of time, and seemingly, given Hawking's concessions here, never will be able to do so.

And now, a few more examples of his positivist philosophy (which by the way is a philosophy, and the way in which he characterizes it might more accurately describe pragmatism), he states, "But as I am a positivist, the question, 'Do extra dimensions really exist?' has no meaning. All we can ask is whether mathematical models with extra dimensions provide a good description of the universe" (*Universe*, 54). So he presumably assumes matter and energy exist (since he discusses them often), and anything else he believes he's experiencing, and that math is a coherent system that can accurately describe the universe and his data, even though I've shown that he doesn't think math can answer all of math's questions, so to speak.

Lastly, Hawking claims, "So maybe we think we live in a four-dimensional world because we are shadows cast on the brane by what is happening in the interior of the bubble. However, from a positivist viewpoint, one cannot ask: which is reality, brane or bubble? They are both mathematical models that describe the observations" (*Universe*, 198). Again, it is very puzzling why Hawking holds that we cannot accurately describe the universe, since that is precisely the charge of physics.

OBJ7: **Has Hawking addressed Hume's devastating critiques of the scientific method, which most scientists acknowledge? Part I: The Problem of Induction**. (2nd para.) Hume argues that there is no non-circular way of arguing that the future will resemble the past. So, Hawking implies that my "floating pen" theory (that states that my pen will float, on earth, when I release it, and it's much heavier than air) is wrong if I release it and it falls to my desk. However, since (1) Hawking himself implies that gravity can never be proven to be correct (since he states that no theory or law can be so proven), and (2) Hawking has not proved that the problem of induction is not a problem, then: (3) not only is it true (as Hawking acknowledges) that (a) we cannot know that my pen will always fall to my desk, but it is also true that (b) my floating pen theory is not necessarily wrong, since it might float the next time I release it. This undercuts Hawking and Mlodinow's claim (*GD*, 5) that scientists might ever have knowledge of at least the physical universe (leaving aside the question about immaterial existence).

OBJ8: **Has Hawking addressed Hume's devastating critiques of the scientific method, which most scientists acknowledge? Part II: There is no necessary relation between any cause and any effect**. (2nd para.) Hume also argues (paraphrasing) that, even though I might witness event A (flipping this light switch) and experience a constant conjunction of event B's (lights going on or off, depending) happening every time, for one million times, all that I can conclude from this experience is that I should expect event B when event A happens. But that's it. There's no warrant for us to think that we have discovered a necessary relation between A's happening and B's happening. To posit laws and theories and state them as never having been proved wrong yet is not the same thing as having certain knowledge that they are true. Returning to Hawking, however, since he claims that his positivist outlook only commits him to looking for a fitting mathematical model to explain the phenomena (*Universe*, 31), he's already granted this point. This returns me to the point that if science is superior to philosophy, or if science is doing its job successfully, it should be able to accurately describe nature. But since we don't know precisely what nature is yet, and science marches on in its attempt to discover it (*Universe*, viii), it is premature for Hawking to report the death of philosophy.

OBJ9: **Even if Hawking and Mlodinow intended to claim that people do not look to philosophers any longer for answers as to the nature of nature, physicists are still making assumptions and arguments, interpreting their data; they thus imply that philosophers' work is important**. (2nd para.) The main point here is that physicists ask philosophical, non-scientific questions, and assume models and argue over interpretations, all of which demonstrates that, when they do these things, they are doing philosophy. Thus, it becomes important for them (just as, say, a scholar of Hume or Plato argues for a certain interpretation of a text) to be able to argue for the best interpretation of the observations or the theory to be assumed. In addition, there are philosophers of science (as Hawking is aware) who interpret the latest theories in science, arguing for and against their coherence and plausibility. Assuming that many people are not aware of philosophical research does not imply that philosophers are not doing valuable work related to current findings

and theories. It only implies that people are not paying attention to philosophers' work, which would be to the physicists' detriment.