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NOT ALL GOOD ARGUMENTS ARE LOGICALLY SOUND

(PART 2)

*One reason that not all good arguments are logically sound is because good arguments used in science are inductive, and inductive arguments are not meant to be logically sound.*

James, according to whom?

Why would any argument (deductive or inductive) be "meant" to be logically unsound? Or, to avoid a possible false dichotomy, not be meant to be sound? That doesn't make any sense.

And James, "good" arguments needs defining.

*However, not all good deductive arguments are logically sound either.*

James, if they aren't, then I would be even more interested in exactly how you are defining "good."

*There is a sense that deductive arguments would ideally be logically sound, but some deductive arguments have sufficiently justified premises, even if those premises aren’t known to be true for certain.*

James, only religious nut jobs believe in absolute certainty. Since you are not one of them, why do you even bother mentioning a concept that is unknowable (absolute certainty)?

*A good deductive argument must be logically valid, and it must have sufficiently justified premises. Even so, not all good deductive arguments are logically sound.*

James, then why would you call a deductive argument that wasn't logically sound ... good?

*A good way to know if good deductive arguments can fail to be logically sound is to consider a good deductive argument that can fail to be logically sound. An uncontroversial example of a good argument is the following:*

*1. All men are mortal.*

*2. Socrates is a man.*

*3. Therefore, Socrates is mortal.*

*Is this argument logically sound? Probably, but maybe not. The premises are sufficiently justified, but that doesn’t mean we know they are true for certain.*

James, your hang-up on absolute certainty is causing problems with your reasoning. It is impossible to know if anything is absolutely certain, so why dwell on it?

*If the premises are true, then it’s sound.*

James, not if the argument is invalid. http://en.wikipedia.org/wiki/Soundness#Of\_arguments

*If the premises are false, then it is not sound. Consider the first premise in particular. Perhaps there is an immortal man who has kept his immortality a secret.*

James, when your argument has to resort to counterfactuals, you should realize that your argument is in deep trouble.

*If we found out a man is immortal,*

James, then you would have to reformulate your argument.

*then the argument will no longer be a good argument. However, it would not be reasonable to require all good deductive arguments to have premises we know are true for absolute certain.*

James, you can't require something - that is impossible to begin with. If absolute certainty were required, all thinking would come to a screeching halt.

*Right now the premise is sufficiently justified and will remain so until we have significant counter-evidence against it. Imagine that all good deductive arguments had to use premises that we know are true for certain.*

James, "certain" means - knowing with as much certainty as is humanly possible (which excludes the impossible concept of absolute certainty).

*In that case scientific conclusions could never be used for the premises of deductive arguments.*

James, in that case NOTHING could ever be used as premises for ANY kind of argument.

*Our best science concludes that all men are mortal, but sometimes scientific conclusions are discovered to be wrong.*

James, until that time comes ... we go with what we know.

*It would be absurd to say that no good deductive argument could use scientific conclusions as premises. Our best scientific conclusions are sufficiently justified and uncontroversial good deductive arguments can use our best scientific conclusions as premises.*

*Examples of scientific conclusions are “if the laws of nature will still exist tomorrow, then the law of gravity will still help us make predictions tomorrow” and “the laws of nature will still exist tomorrow.” A perfectly good deductive argument that uses these conclusions as premises is the following:*

James, gravity is not a law, it is a theory.

*1. The laws of nature will still exist tomorrow.*

*2. If the laws of nature will still exist tomorrow, then the law of gravity will still help us make predictions tomorrow.*

*3. Therefore, the law of gravity will help us make predictions tomorrow.*

*We don’t know that these premises are true for absolutely certain.*

James ... GET OVER IT!

We don't need to know the impossible (absolute certainty). Civilization advances based on what we can know to the greatest degree of certainty possible - that's what got us to the moon. If we had waited until we were absolutely certain that each one of the millions of parts on the rocket would function properly ... we would still be living in trees and looking for little bugs to eat.

*Sometimes the conclusions of science are proven wrong at some later point.*

James, there is a word for that. It's called "progress."

James, up until you, the only people whom I have heard refer to scientific progress as "proven wrong" were Creationists. I swear you are only a couple of essays away from accepting Jesus Christ as your personal Lord and Savior.

*The laws of nature might not exist tomorrow. Even so, it is perfectly reasonable to assume they will. This is a good argument, but it might not be logically sound.*

James, only because you can't get absolute certainty out of your mind. Dump that screwy concept and come back to the rational side. We are vastly outnumbered and desperately need all the help we can get.

*In conclusion, not all good deductive arguments are logically sound.*

James, in conclusion, then they aren't good deductive arguments.

*We hope our good deductive arguments are logically sound, but sometimes they aren’t. Instead, I suggest that we define good deductive arguments as those that are logically valid with sufficiently justified premises.*

James, I think that everyone else has already figured that out. We're just waiting for you.

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JAMES GRAY'S REPLY

*Did you read part 1?*

No James.

*It sounds like you only read part 2.*

James, I didn't imply otherwise.

Now James quotes me:

"According to whom?  
Why would any argument (deductive or inductive) be "meant" to  
be logically unsound? Or, to avoid a possible false dichotomy, not  
be meant to be sound? That doesn't make any sense."

*That's the case by definition. Inductive arguments take data and make predictions with them. A prediction is not guaranteed to be true. However, the conclusion of a deductive argument is guaranteed to be true.*

James, your reply ignored my question: how could any argument be "meant" to be unsound? And other than you, who made that claim?

James quotes me again:

"And 'good' arguments needs defining."

*I did define it. Could it be defined more? Yes, but philosophers don't agree on the necessary/sufficient conditions. Even so, we should all agree that good scientific theories are well supported to inductive arguments.*

James, good scientific theories are supported by evidence not arguments.

In the first email James had written:

*However, not all good deductive arguments are logically sound either.*

To which I replied:  
"If they aren't, then I would be even more interested in exactly  
how you are defining 'good'."

Now James responds:  
*A good reason to believe something, as stated earlier.*

James, why would I have good reason to believe a deductive argument that wasn't logically sound?

Now from James' first email where he had stated:

*There is a sense that deductive arguments would ideally be logically sound, but some deductive arguments have sufficiently justified premises, even if those premises aren’t known to be true for certain.*

To which I had replied:  
"Only religious nut jobs believe in absolute certainty. Since you are  
not one of them, why do you even bother mentioning a concept  
that is unknowable (absolute certainty)?"

Now James responds:  
*Because it has to be said to prove what I want to prove.*

James, how does resorting to an imaginary concept prove what you want to prove?

*If we can't know things for certain, then we can't depend on all our arguments being sound.*

James, name one thing that you know "for certain."

We can know things only to a degree of certainty, as your earlier statement demonstrated when you correctly stated that science is often proved wrong; yet we can depend on our arguments being sound if we rigorously follow the rules of logic.

So I disagree.

James had written in email #1:

*A good deductive argument must be logically valid, and it must have sufficiently justified premises. Even so, not all good deductive arguments are logically sound.*

To which I had replied:  
"Then why would you call a deductive argument that wasn't logically sound ... good?"

Now James responds:  
*Because we don't rely on sound arguments when we form beliefs.*

James, say what?

If you don't rely on sound arguments to form your beliefs, what do you rely on?

*We rely on the best information available and we make predictions.*

James, why can't that "best information available" be a sound argument?

*Because our best scientific conclusions are not necessarily sound but we still have a good reason to believe them.*

James, name one.

That will require that you produce a scientific conclusion that is either 1) invalid, or 2) contains a false premise.

James now quotes me from email #1:

"When your argument has to resort to counterfactuals, you should  
realize that your argument is in deep trouble."

*I disagree. The point is we don't rely on it being sound.*

James, why would you rely on something that wasn't sound?

*We rely on inductive evidence instead.*

James, evidence is neither inductive nor deductive - reasoning is.

I found one web site where that term was used ... incorrectly.

The author defined observations as inductive evidence showing that he doesn't understand the meaning of induction.

Now James quotes me again from the first email:

"James ... GET OVER IT!  
We don't need to know the impossible (absolute certainty)."

*That's exactly what I am saying. Where did I say we did?*

James, I pointed out every single time that you did. If you want to know where, then you will have to go back and reread my first email.

*My point is that we can't rely on arguments being sound because that would require certainty.*

James, we can only rely on sound arguments. No one would rely on an unsound argument. Soundness doesn't require absolute certainty because absolute certainty does not exist and sound arguments ... do.

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JAMES GRAY'S FINAL RESPONSE

*Before I continue this conversation, I'd like you to read part 1. It explains a lot there.*

MY SUMMARY

Against my better judgment I went ahead and read part 1. As I expected, it was pretty much the same drivel I put up with in Part 2. It was a waste of time. Since he is obviously unable to defend his assertions, continuing the email exchange would also be a waste of time.

There is no question that Gray's argument went "off the tracks." The only question for him to answer ... is where?

James Gray's essays can be found at:

http://ethicalrealism.wordpress.com/

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THE SCIENCE SEGMENT

First Heralded Single Photon Source Made from Silicon

In an important step towards more practical quantum information processing, researchers have demonstrated the first heralded single photon source made from silicon. This source complements two other recently developed silicon-based technologies -- interferometers for manipulating the entanglement of photons and single photon detectors -- needed to build a quantum optical circuit or a secure quantum communication system.

The line between "interesting" and practical in advanced electronics and optics often comes down to making the new device compatible with existing technology. The new heralded photon generator meshes with existing technology in three important ways: it operates at room temperature; it produces photons compatible with existing telecommunications systems; and it's in silicon, and so can be built using standard, scalable fabrication techniques.

A "heralded" photon is one of a pair whose existence is announced by the detection of its partner -- the "herald" photon. To get heralded single photons, researchers built upon a technique previously demonstrated in silicon called photon pair generation.

In photon pair generation, a laser pumps photons into a material whose properties cause two incoming pump photons to spontaneously generate a new pair of frequency-shifted photons. However, while these new photons emerge at precisely the same time, it is impossible to know when that will occur.

Detecting one of these photons, therefore, lets researchers know to look for its partner. While there are a number of applications for photon pairs, heralded pairs will sometimes be needed, for example, to trigger the storage of information in future quantum-based computer memories.

The silicon-based device efficiently produced pairs of single photons, and their experiment clearly demonstrated they could herald the presence of one photon by the detection of the other.

While the new device is a step forward, it is not yet practical, because a single source is not bright enough, and a number of other required functions need to be integrated onto the chip. However, putting multiple sources along with their complementary components onto a single chip -- something made possible by using silicon-based technology -- could supply the performance needed for practical applications.

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FAMOUS QUOTES

KARL POPPER (biography previously given)

"The history of science, like the history of all human ideas,

is a history of irresponsible dreams, of obstinacy, and of error.

But science is one of the very few human activities

— perhaps the only one —

in which errors are systematically criticized and fairly often, in time, corrected.

This is why we can say that, in science, we often learn from our mistakes,

and why we can speak clearly and sensibly about making progress there."