

Proof and Probability in Arguing for God's Existence

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Logical arguments, including those offered for belief in God, may be divided into two main types: deductive arguments which aim at yielding proof and inductive arguments which propose a probability. I will not here run through the various arguments that have been offered for God's existence - at least not directly. Rather I will discuss the nature of proof and probability, and use traditional arguments for God's existence as illustrations. Different rules of reasoning apply depending on whether we are testing a proof or a probability argument.

PROOF

Deductive reasoning

Proof can be acquired only from valid deductive reasoning. This very precise use of the term 'proof' is taken from mathematics, and is not reflected in our every-day language. According to this precise usage, you do not arrive at 'proof' through experiments in natural science, rather you gather scientific evidence and develop hypotheses and theories. Nor do you 'prove' someone innocent or guilty in a court of law. You find them innocent or guilty on the basis of evidence. Proof is that which by logic has to be the case. Even if Peter Piper is accused of stealing a pickled pepper at 7 p.m. in McDonald's in Exeter, and is spotted at 6.45 p.m. at Paddington station in London, his innocence is not strictly 'proven'. Nothing in logic prevents him from having travelled the 200 miles in 15 minutes, but we would think that this alibi provides **overwhelming evidence** of Peter Piper's innocence. This strict use of the term 'proof' enables philosophers to make an important distinction between arguments which establish what logically has to be the case and arguments which indicate what is very likely to be the case.

You may know this common example of deductive reasoning:

- (1) All men are mortal
- (2) Socrates is a man
- (3) Socrates is mortal

This is a valid deductive argument. How do we know? We might be tempted to say, 'because we can see that it is!' However, not all valid deductive arguments are obvious. Complicated mathematical proofs are not obvious. Even the following, simple argument may not seem obvious. It is an argument used by Jostein Gaarder in *Sophie's World*, to convey how deductive reasoning helps us to put things into their proper categories.

- (1) All baby mammals live on their mother's milk
- (2) mice are mammals
- (3) baby mice live on their mother's milk

Possibly you have never thought through whether mice are suckling animals, but if you find yourself needing to know how baby mice feed you could work it out deductively if you know that mice are mammals and that mammals by nature suckle. You could approach the problem inductively, that is, by inference from observation and experiment, but you could not be sure, on the grounds of induction, that your findings were true for all baby mice. Rather you would have evidence of instances of baby mice who suckled, and you would infer that other baby mice suckle too. By deduction you could establish your conclusion more quickly, and as a principle which holds generally for baby mice.

Testing the validity (soundness) of deductive arguments

If you cannot see plainly that an argument is valid, there is a crucial test which you can apply: deny the conclusion and see if you are then being contradictory in asserting the premises. **If in rejecting the conclusion you can no longer retain all the premises, your argument is valid. A valid or sound deductive argument is one in which the conclusion necessarily follows from the premises.** (The terms 'valid' and 'sound' have the same meaning in this context.) This test is known as *reductio ad absurdum* (reducing to absurdity). If we try it on our first example, we could posit that Socrates is not mortal. We would then have to suppose either that Socrates is not a man or that at least one man is not mortal. Either way we have shown that we must question one of our premises.

What happens if we apply this test to an invalid argument? Take this as an example:

- (1) If Jesus were just a man, he would be mortal
- (2) Jesus is not just a man
- (3) Jesus is not mortal

If we posit the opposite conclusion, that Jesus is mortal, are we obliged to reject one of the premises? No, the premises can hold whether the conclusion is true or false. Jesus might be a mortal centaur (half man and half horse), or he might be a bionic man. The claim that he is not just a man does not in itself justify the conclusion that he is not mortal.

I have used the above examples not in order to present information about Socrates, mice or Jesus but to discuss the rules of logic. In order to test the validity of the arguments no mice need exist, and Socrates and Jesus need never have lived. **A logically valid argument needs neither actually true premises nor an actually true conclusion, but if its conclusion is false, then at least one premise must be false.** The premises and conclusion may all in fact be untrue, as they are in this valid argument:

- (1) All my neighbours live in flats
- (2) Sam is one of my neighbours
- (3) Sam lives in a flat

(my neighbours live in houses, and I have no neighbour called Sam).

An argument is known to be valid simply by **the relation between the premises and the conclusion.**

Consider the following two arguments:

- (1) Euthanasia is murder
- (2) Murder is wrong
- (3) Therefore euthanasia is wrong.

- (1) jiggiwig is murder
- (2) murder is wrong
- (3) Therefore jiggiwig is wrong

The word euthanasia has simply been substituted for a nonsense word jiggiwig. The structure remains the same and in both cases if you deny the conclusion you must also reject at least one premise. Therefore the arguments are valid.

Testing the 'goodness' of deductive arguments

You may feel indignant at my claim to have a valid argument stating that euthanasia is wrong. You may want to come back at me, and argue that euthanasia is not murder, and so accuse me of begging the question. That would be a very reasonable and effective response. You would be rejecting my first premise. You can find no contradiction in the argument, but you can challenge the concepts as used in the premises. Should euthanasia be classified as murder? Is murder always wrong? A challenge to the premises of an argument is a challenge not to the argument's validity, but to the argument's 'goodness'.

An argument may be deductively valid but not good. The American philosopher of Religion Alvin Plantinga suggests this as a possible argument for God's existence:

- (1) Either God exists or $7+5=14$
- (2) It is false that $7+5=14$
- (3) Therefore God exists

This is a valid deductive argument in that the conclusion follows from the premises. If the premises are true, the conclusion is certainly true. But it is not a 'good' deductive argument. Why? Because the premises are not known to be true by those who dispute the conclusion. The first premise does not provide a common starting-point for devising a persuasive argument. As Plantinga says: 'no one who didn't already accept the conclusion, would accept the first premise'.¹

Plantinga thinks that the ontological argument is like this. He regards it as valid, but not good. Plantinga's version of the ontological argument starts with the premise: 'the existence of a maximally great being is possible'. This is a premise that not everyone will accept.

Summary on proof and deductive reasoning

Anselm's first premise – 'God is the greatest conceivable being' - is less vulnerable. Here is a paraphrase of his argument:

- (1) God is the greatest conceivable being (GCB)
- (2) Some things exist in reality and some in the understanding only
- (3) That which exists in reality is greater than that which exists in the understanding alone
- (4) God (the GCB) must exist both in the understanding and in reality.

Anselm is in a strong position in contending that even the fool or the atheist could accept that the concept of God is the concept of a being than which nothing greater can be conceived. However, Gaunilo did object to Anselm's first premise on the grounds that we cannot conceive of God, and this was a challenge to the goodness of the argument.

Gaunilo also attacked the structure of the argument by substituting an imaginary perfect island for GCB and drawing the conclusion that the perfect island must exist in reality - a conclusion which is clearly false. This was a challenge to the validity of the argument. Gaunilo worked with Anselm's skeleton argument, and showed that with the same skeleton your premises lead you to a false conclusion. An argument is shown to be invalid if the premises can be true and the conclusion false. Anselm's response was to argue for God's uniqueness as a necessary being, so that 'God' in the argument cannot be substituted by anything else. Everything other than God is contingent and the argument will not work in the case of contingent beings. In effect, he was saying that the structure of the argument is valid only in the case of God, who exists necessarily. I will leave you to ponder this, as it has been pondered for centuries.

PROBABILITY

Inductive Reasoning

The usefulness of deductive reasoning is only preliminary. It enables us to check that we are being logically coherent. Beyond this, we must test our concepts and marshal the evidence.

Arguments which draw on or must be tested by evidence are inductive arguments, and they do not yield proof. They yield probability.

Probability arguments are not second-rate attempts to make a case. Although they do not yield proof, they are

frequently more substantial than deductive arguments in that they attempt to give the best possible theory given all the relevant data. We saw that a deductive argument on the wrongness of euthanasia was not very satisfactory. A more substantial, and in this case more meaningful, argument would draw on a suitably wide range of experience, including the experience of those who wish euthanasia could be an option for them; of relatives of patients who have chosen euthanasia; and of doctors and nurses.

Experimental scientists work with inductive argument: they infer general patterns of behaviour, or 'laws', from their observations. By repeating the same experiment several times to see if they get the same results, they infer the property of matter. To take a very simple example, observing repeatedly that waters boils at 100 C and freezes at 0 C, they infer that it is a property of water to behave thus. No one can know with certainty (because it is not a principle of logic) that water will behave like this in the future, or even the next time a kettle or freezer is used. But it is highly probable that water will continue to behave in this way. Moreover, we all assume this probability and continue to use our kettles and freezers. Most of the reasoning we use on a daily basis is inductive, as when we reason that smoking damages health, that the ozone hole will continue to expand if we do not curb CFC emissions, and that it will only take five minutes to get to the bus-stop.

Sound and unsound use of evidence

How can we distinguish between sound and unsound use of evidence? In cases of logical deduction, we have general licence to say that whenever the logical structure of an argument is a certain way, the argument is sound. We do not have any parallel general licence for inductive reasoning. Inductive inference relies on evidence and evidence is good only if it connects with our experience (whereas deductive arguments are invulnerable to experience so far as their validity is concerned).

Sound use of evidence relies on drawing analogies with known cases of the same pattern. If I were to reason that I have always got to the bus stop in 5 minutes, so should be able to do so today, my reasoning would be sound if today were like all other days. But if today I have a twisted ankle, or I am in a different town, my reasoning would not be sound because I would be drawing analogies between situations which were not sufficiently similar. What about this example: I stumble upon something mechanical which has intricate parts that work together, and I infer from my experience of other similar objects that this thing has been designed by somebody? This is essentially the structure of William Paley's famous argument from design where he drew an analogy between the appearance of design in a watch and the appearance of design in the world. That there is a designer of the world is an inference, not a formally logical conclusion. Whether Paley's reasoning is sound depends on whether the world is sufficiently similar to a watch. Even before Paley wrote, Hume had denied that it is possible to draw an analogy between the world and a human artefact.

Most teleological arguments in the wake of the theory of evolution and speculation about the Big Bang have been inductive. They posit that the probability that there should be the conditions for the development of life is infinitesimally small, and that the general order of nature is so remarkable that it cannot be explained by science.

Cosmological arguments can also be offered inductively. One might reason along these lines: we do not regard other complex systems as uncaused, so by analogy we expect there to be a cause for the most complex of all systems, the universe.

Teleological and cosmological arguments can be developed inductively as probability arguments because they are *a posteriori* arguments based on experience. Ontological arguments are *a priori* arguments, they do not reason from experience but involve the drawing out of concepts. Therefore they stand or fail as proofs, and can never be offered in inductive form.

You will not find probability versions of ontological arguments.

A valid inductive argument is one in which the premises make the conclusion probable, or add to its probability. An inductive argument may be valid but not good if the premises are not known to be true by those who dispute the conclusion. A teleological argument which contains the premise, 'the world bears the marks of design' is not good if would-be objectors see the world as bearing only the marks of chance.

Arguments that are not 'good' may still be worthwhile

If a deductive argument is invalid it fails as a proof and is of no use. If it is valid but not good, it still fails as a proof because it is possible to reject it wholesale. Nevertheless it may be of limited use. Though it will fail to prove the truth of theism, it will demonstrate that theism is not contrary to reason. For example, someone who believes, as Bertrand Russell did, that the universe is simply a brute fact, would not accept the supposition of cosmological arguments that the existence of the universe needs some explanation. Cosmological arguments reason that the explanation for existence cannot be found within the universe itself, but must be attributed to a cause outside of the universe (which they call God). Such arguments may not be good so as to convince the Russells of this world, but they may be useful in helping theists, and others inclined to accept the premises, to work out the rationality of believing in God.

If an inductive argument for God's existence is invalid, because it has not made sound use of evidence, it fails to present a probability. If it is valid but not 'good', in that its premises are not all acceptable to would-be objectors, it may still be helpful in showing that belief in God is rational. Perhaps only theists think that we can argue from the way the world is to a designer, but the fact that only theists think this does not render the exercise pointless.

To develop this point we might adapt Basil Mitchell's parable of the stranger, which is more familiar in discussions of religious language. In this parable, a partisan working for the resistance in an occupied country meets a stranger who impresses him. He chooses to trust this stranger on the basis of that one meeting. Some of the stranger's actions seem to justify his trust, others of his actions are hard to reconcile with the stranger's claim that he supports the resistance. Sometimes he helps the movement, at other times he is seen handing over members of the movement to the occupying forces. Now perhaps only someone who was inclined to trust the stranger would interpret his actions

as consistent with the interests of the resistance. Those not inclined to trust the stranger may take his actions as ones of betrayal. No one shares the partisan's initial experience and judgement of the stranger. Nevertheless, we wouldn't say, 'There is no point pondering the issue because it won't change anyone's minds; those who trust the stranger will interpret his actions favourably, and those who don't won't'. It is important that the partisan go through the process of weighing the evidence and assessing his reasons, even if he did not make his original judgement by means of rational argument and even if he is not likely to change his mind or win anyone else over to his opinion. Much hinges on his decision to trust the stranger; a decision which will affect others whether or not they share his views. He needs to keep an eye on the situation because his and others' lives are at risk. He must use his reason to test the viability of his trust in the stranger, and the importance of his doing so is not diminished by the fact that no-one else is convinced by his arguments.

Similarly it is important that theists go through a reasoning process to relate their beliefs to the world around them and their wider experiences, in order to test their rationality, regardless of whether they came to their beliefs through reasoned argument, and regardless of whether they will persuade anyone else by their arguments.

1. *God, Freedom and Evil* (Grand Rapids: Eerdmans 1977), extract reprinted in Michael Peterson et al, *Philosophy of Religion: Selected Readings*, New York, Oxford: OUP 1996, pp.150-63.

Questions for Discussion

Is there an argument for God's existence which you think succeeds as a proof?

If Anselm's ontological argument fails as a proof, why does it?

Are there any sound disproofs of God's existence?

Is it probable that God exists?

Glossary

Proof is established by valid or sound deductive arguments

Valid/sound deductive arguments: where the conclusion follows necessarily from the premises. The validity or soundness of an argument can be tested by a *reductio ad absurdum*, whereby you reject the conclusion and see if you can still hold the premises. If you can retain all the premises while rejecting the conclusion, the argument is not valid.

Invalid/unsound deductive arguments: where the conclusion does not follow necessarily from the premises: the premises can be held while the conclusion is rejected

Probability is posited by valid or sound inductive arguments

Valid/sound inductive arguments: where the premises make the conclusion probable, or add to its probability.

Invalid/unsound inductive arguments: where the probability of the conclusion does not follow from the premises.

Good arguments (deductive or inductive): where the premises are acceptable even to those who would oppose the argument. An argument is not good if the premise (e.g. 'euthanasia is murder') can be rejected by a would-be opponent of the argument (in this case the argument that euthanasia is wrong).

Recommended reading

William J. Abraham, *An Introduction to the Philosophy of Religion*, Englewood Cliffs, NJ: Prentice Hall, 1985

Martin Hollis, *Invitation to Philosophy*, Oxford: Blackwell, 1985, Ch. 1

Basil Mitchell ed., *The Philosophy of Religion*, Oxford: OUP, 1971 Ch. 1

Richard Swinburne, *The Existence of God*, Oxford: Clarendon, 1979, Ch. 1 (most suitable for teachers)