Proving a Negative (1999)
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I know the myth of "you can't prove a negative" circulates throughout the nontheist community, and it is good to dispel myths whenever we can. As it happens, there really isn't such a thing as a "purely" negative statement, because every negative entails a positive, and vice versa. Thus, "there are no crows in this box" entails "this box contains something other than crows" (in the sense that even "no things" is something, e.g. a vacuum). "Something" is here a set restricted only by excluding crows, such that for every set S there is a set Not-S, and vice versa, so every negative entails a positive and vice versa. And to test the negative proposition one merely has to look in the box: since crows being in the box (p) entails that we would see crows when we look in the box (q), if we find q false, we know that p is false. Thus, we have proved a negative. Of course, we could be mistaken about what we saw, or about what a crow is, or things could have changed after we looked, but within the limits of our knowing anything at all, and given a full understanding of what a proposition means and thus entails, we can easily prove a negative in such a case. This is not "proof" in the same sense as a mathematical proof, which establishes that something is inherent in the meaning of something else (and that therefore the conclusion is *necessarily* true), but it is proof in the scientific sense and in the sense used in law courts and in everyday life. So the example holds because when p entails q, it means that q is included in the very meaning of p. Whenever you assert p, you are also asserting q (and perhaps also r and s and t). In other words, q is nothing more than an element of p. Thus, all else being as we expect, "there are big green Martians in my bathtub" *means* if you look in your bathtub you will see big green Martians, so not seeing them *means* the negative of "there are big green Martians in my bathtub."

Negative statements often make claims that are hard to prove because they make predictions about things we are in practice unable to observe in a finite time. For instance, "there are no big green Martians" means "there are no big green Martians in this or any universe," and unlike your bathtub, it is not possible to look in every corner of every universe, thus we cannot completely test this proposition--we can just look around within the limits of our ability and our desire to expend time and resources on looking, and prove that, where we have looked so far, and within the limits of our knowing anything at all, there are no big green Martians. In such a case we have proved a negative, just not the negative of the sweeping proposition in question.

The Method of the Best Bet

Logicians note that it is easier to prove that there *are* such beings than to prove there aren't simply because we only need to find one of them to accomplish our proof, and thus will not have to look everywhere--unless we are so unlucky that where the one Martian is just happens to be the last place we look. But in the final analysis, it is not being "negative" that makes a proposition difficult to prove, but the breadth of the assertion. For instance, "there is gravity on every planet in every universe" could be disproven by searching just one planet and finding no gravity, but if we kept finding gravity we could

never decisively prove it true, any more than if we kept failing to find Martians in the universe would we be able to decisively prove that "there are no Martians in the universe." Thus, what people call the "you can't prove a negative" axiom is actually nothing more than the eternal problem of induction: since we can't test a proposition in every place and at every time, we can never be absolutely certain that the proposition remains true in all times and places. We can only infer it.

In computers this sort of proof (of the positive or negative variety) results in an infinite loop (or quasi-infinite loop), and clever programmers can give software the tools to recognize such routines before executing them. Then, instead of executing them, they have them execute a simpler subroutine that equates to a "best guess." Not surprisingly, we all do the same thing: since we have neither the ability nor the desire to devote a dangerous proportion of our time and resources to testing every proposition of this kind, we adopt a simpler rule: given insufficient evidence, then no belief. This is the same thing as "given sufficient evidence, then belief," since insufficient evidence is the same thing as sufficient evidence for denial.

This amounts to a "best guess" solution, where we recognize that a statement may be true, but have insufficient grounds to believe it. Or, in the case of propositions for which we have abundant but incomplete proof, we recognize that it may be false, but have insufficient grounds to *disbelieve* it. This is the basic principle behind all hypothetical thought, from the theories of science, to the "sun will come up tomorrow" variety of common sense. Given the set of all propositions of the first kind (where there is a lack of evidence despite some reasonable measure of checking), nearly all of them are false, so it is a safe bet to assume they are all false until proven otherwise. Conversely, given the set of all propositions of the second kind (where there is continuous evidence after some reasonable measure of checking), nearly all of them are true, so it is a safe bet to assume they are true until proven otherwise.

Unprovable Statements

Consider the negative case. When it comes time to decide what to believe, if we did not assume such "unprovables" were false, we would either have to choose which unprovables to believe by some totally arbitrary means, which amounts to a ridiculous "belief by whim" method, or else we have to assume that all such statements are true. Of course, we only have to believe true those unprovables that do not contradict other proven statements or that do not contradict each other, but even in the latter case we have no grounds for choosing which of two contradictory unprovables we will believe, and this is the same "belief by whim" dilemma. But even with these provisions, this policy would result in a great number of absurd beliefs (like "there are big green Martians in the universe"). Thus, when finally deciding what to believe, it is clear that the best policy is to assume that all unprovables are false, until such time as they are proved. In other words, it is reasonable to disbelieve a proposition when there is no evidence. Even if it is less certainly false than propositions which are actually contradicted by evidence (although even that does not amount to a complete certainty), it is still reasonable to

regard them as false so long as we've done some checking, and don't ignore new evidence that we come across.

A similar line of reasoning establishes the opposite in all positive cases. If we did not assume all such unprovables were true, we would either have to choose which unprovables to *disbelieve* by some totally arbitrary means, which again amounts to a ridiculous "belief by whim" method, or else we have to assume that all such statements are false. Of course, it would be plainly absurd to believe that all the statements for which we have some evidence are false. Although "absolute skeptics" actually claim to assume this, they put in place of truth a concept of assent which amounts to the same solution as I have discussed above: betting on the truth of a statement that we have many reasons to believe but can never be certain of. Thus, when finally deciding what to believe, it is clear that the best policy is to assume that all unprovables for which we have good evidence are true, until such time as they are disproved. In other words, it is reasonable to believe a proposition when there is good evidence. Even if it is less certainly true than propositions which are actually irrefutable, such as mathematical truths or "I am thinking, therefore I am," it is still reasonable to regard them as true so long as we've done some checking, and don't ignore new evidence that we come across. In all cases, we can perhaps move the bar up and down--changing the amount of "checking" that counts as reasonable and sufficient before resolving to believe--but this affects all our beliefs, as the bar cannot be set differently for different things without again engaging in "belief by whim" methods, and we will all find that there is such a thing as having the bar too low or too high, as one can find through the same reasoning as I have engaged in here.

The Unbelievability of Christian Theism

Christian Theism in its most basic sense entails observations that would necessarily be made by everyone everywhere and at all times, and thus it is as easily disproven as the alien in the bathtub. For instance, God is theoretically omnipresent, and granted us the ability to know him (to feel his loving presence, etc.), yet I have absolutely no sensation of any God or anything that would be entailed by a God, even though by definition he is within me and around me wherever I go. Likewise, God is theoretically the epitome of compassion, and also all-knowing and all-powerful and beyond all injury, yet I know that what demonstrates someone as compassionate is the alleviation of all suffering known to them and safely within their power to alleviate. All suffering in the world must be known and safely within the power of God to alleviate, yet it is still there, and since the Christian 'theory' entails the opposite observation, Christianity is false. Likewise, God theoretically designed the universe for a moral purpose, but the universe lacks moral features--animals thrive by survival of the fittest, not survival of the kindest, and the laws of physics are no respecter of persons, they treat the good man and the bad man equally. Moreover, the universe behaves like a mindless machine, and exhibits no intelligent action of its own accord, and there are no messages or features of a linguistic nature anywhere in its extra-human composition or behavior, such as we would expect if a thinking person had designed it and wanted to communicate with us.

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Christians attempt to preserve their proposed theory by moving it into the set of unprovables that lack all evidence. They do this arbitrarily, and for no other reason than to save the proposed theory, by creating impassable barriers to observation, just as requiring us to look in every corner of every universe creates an impassable barrier for one who is asked to decisively disprove the statement "there are big green Martians." For instance, the advanced theory holds that God alleviates suffering in heaven, which we conveniently cannot observe, and he has reasons for waiting and allowing suffering to persist on Earth, reasons which are also suitably unobservable to us, because God chooses not to explain them, just as he chooses, again for an unstated reason that is entirely inscrutable, to remain utterly invisible to all my senses, external and internal, despite being always around and inside me and otherwise capable of speaking to me plainly.

The problem is not, as some theists think, that we can find no explanations to "rationalize" a god in this world of hurt. I can imagine numerous gods who would be morally justified and even admirable, and others who would be neither evil nor good, and still others who are evil, but none of these would be the Christian god. The fact is that Christianity is the proposal of a theory, and like all theories, it entails predictions--but these predictions are not being born out. So Christians invent excuses to save the theory-- excuses which have absolutely no basis in any evidence or inference, except the sole fact that they rescue the theory. This is Ptolemy's epicycles all over again: the motions of the planets and sun refused to fit the theory that they all revolve around the Earth, so Ptolemy invented numerous complex patterns of motion that had no particular reason to happen other than the fact that they rescue the theory of geocentricity. It is simply far wiser to conclude that instead of this monstrously complex and bizarre architecture of groundless saving suppositions, it makes far more sense, and uses far fewer suppositions, to simply admit that the universe doesn't revolve around the Earth after all. As for all the other theories--all the other possible gods--there is no more evidence for them than for this incredibly complex deity with a dozen strange and mysterious reasons that only too conveniently explain why we never observe him or his actions in any clear way.

Of course, even these groundless "solutions" to the Christian 'theory' do not really save the theory, because, to maintain it, at some point you must abandon belief in God's omnipotence--since at every turn, God is *forced* to do something (to remain hidden and to wait before alleviating suffering, etc.) by some unknown feature of reality, and this entails that some feature of reality is more powerful than God. And this feature cannot merely be God's moral nature, since if that were his only limitation, there would then be no barrier to his speaking to me or acting immediately to alleviate suffering or designing the universe to have overtly moral or linguistic features, since any truly moral nature would compel, not prevent, such behavior. Thus, the Christian hypothesis is either incoherent or unprovable, and in the one case it is necessarily false, while in the other it lacks justification, so we have no reason to believe it, any more than we have a reason to believe that there is a big green Martian on some planet in some corner of some universe. This is what it means to "prove a negative."