

Logic & Fallacies¹

Table of Contents

<i>Logic & Fallacies</i>	1
Introduction.....	2
What logic isn't	3
Arguments.....	3
Propositions	4
Premises.....	4
Inference	4
Conclusion	5
Implication in detail	5
Truth Table for Implication	6
Example argument	6
Spotting arguments	6
Further reading.....	7
Fallacies	8
List of Fallacies.....	9
Accent.....	9
Ad hoc	9
Affirmation of the consequent	9
Amphiboly.....	10
Anecdotal evidence.....	10
Argumentum ad antiquitatem	10
Argumentum ad baculum / Appeal to force	10
Argumentum ad crumenam	11
Argumentum ad hominem	11
Argumentum ad ignorantiam.....	12
Argumentum ad lazarum	12
Argumentum ad logicam	13
Argumentum ad misericordiam	13
Argumentum ad nauseam	13
Argumentum ad novitatem	13
Argumentum ad numerum.....	14
Argumentum ad populum.....	14
Argumentum ad verecundiam.....	14
Audiatur et altera pars.....	15
Bifurcation	15
Circulus in demonstrando.....	15
Complex question / Fallacy of interrogation / Fallacy of presupposition.....	15
Fallacies of composition	16
Converse accident / Hasty generalization	16
Converting a conditional.....	17
Cum hoc ergo propter hoc	17
Denial of the antecedent	17
The fallacy of accident / Sweeping generalization / Dicto simpliciter	17
Fallacy of division	18
Equivocation / Fallacy of four terms.....	18
The extended analogy	18
Ignoratio elenchi / Irrelevant conclusion.....	19
The Natural Law fallacy / Appeal to Nature	19
The "No True Scotsman..." fallacy	19
Non causa pro causa	20

¹ This article was taken from an Atheist website to avoid bias (<http://www.infidels.org/news/atheism/logic.html>). It is an excellent review of logic, and demonstrates why many of our apologetic arguments fail to persuade. It also shows why presuppositional apologetics is preferred over classical or empiricist: "We're looking for lookers." The grammar, spelling, and syntax have been cleaned up in places, and obsolete website references have been removed. W. H. Gross – Colorado Springs CO 2004.

Non sequitur	20
Petito principii / Begging the question.....	20
Plurium interrogationum / Many questions.....	20
Post hoc ergo propter hoc	20
Red herring	21
Reification / Hypostatization	21
Shifting the burden of proof.....	22
The slippery slope argument.....	22
Straw man.....	22
Tu quoque.....	22
Fallacy of the Undistributed Middle / "A is based on B" fallacies / "...is a type of..." fallacies.....	23
Source:	23
<i>Common Arguments</i>	24
Introduction.....	24
Adolf Hitler was an atheist!	24
The Bible proves it.....	25
Pascal's Wager (God is a safe bet)	25
Lord, Liar or Lunatic?.....	27
What is Occam's Razor?	28
Why it's good to believe in Jesus	28
Why I know that God exists.....	29
Einstein and "God does not play dice"	29
Everyone worships something	30
The universe is so complex it must have been designed	31
Gödel's Incompleteness Theorem	32
George Bush on atheism and patriotism.....	33
I know where hell is!.....	35
Biblical contradictions wanted.....	35
The USA is a Christian nation/state	35
The USA is not a Christian nation/state	36
The Bible says 'Thou Shalt Not Kill'.....	37
What does 'xian' mean?.....	37
The Bible says π is 3!.....	37
Aren't atheists Satanic?	38

Introduction

There's a lot of debate on the net. Unfortunately, much of it is of very low quality. The aim of this document is to explain the basics of logical reasoning, and hopefully improve the overall quality of debate.

The Concise Oxford English Dictionary defines logic as "the science of reasoning, proof, thinking, or inference." Logic will let you analyze an argument or a piece of reasoning, and work out whether it is likely to be correct or not. You don't need to know logic to argue, of course; but if you know even a little, you'll find it easier to spot invalid arguments.

There are many kinds of logic, such as fuzzy logic and constructive logic; they have different rules, and different strengths and weaknesses. This document discusses simple Boolean logic,² because it's commonplace and relatively easy to understand.

² Boolean logic is Aristotelian logic with math symbols and some other enhancements to create a more complete system. The author has actually left out most of those enhancements, so you may consider this Aristotelian logic. He has also included one of Gödel's theorems in the next article ([Common Arguments Against Atheists](#)).

When people talk about something being 'logical', they usually mean the type of logic described here.

What logic isn't

It's worth mentioning a couple of things which logic is not.

Firstly, **logical reasoning is not an absolute law which governs the universe**. Many times in the past, people have concluded that because something is logically impossible (given the science of the day), it must be impossible, period. It was also believed at one time that Euclidean geometry was a universal law; it is, after all, logically consistent. Again, we now know that the rules of Euclidean geometry are not universal.

Secondly, **logic is not a set of rules which govern human behavior**. Humans may have logically conflicting goals. For example:

- John wishes to speak to whomever is in charge.
- The person in charge is Steve.
- Therefore John wishes to speak to Steve.

Unfortunately, John may have a conflicting goal of avoiding Steve, meaning that the reasoned answer may be inapplicable to real life.³

This document only explains how to use logic; you must decide whether logic is the right tool for the job. There are other ways to communicate, discuss and debate.⁴

Arguments

An argument is, to quote the Monty Python sketch, "a connected series of statements to establish a definite proposition."

Many types of argument exist; we will discuss the *deductive argument*. Deductive arguments are generally viewed as the most precise and the most persuasive; they provide conclusive proof of their conclusion, and are either *valid* or *invalid*.

Deductive arguments have three stages: premises, inference, and conclusion. However, before we can consider those stages in detail, we must discuss the building blocks of a deductive argument: propositions.

³ What he actually means is that there is an enthymeme in the argument (an unstated proposition), which is that he doesn't want to meet Steve. Once it is included, the argument is proven false.

⁴ Actually, there isn't any other way, at least not if you want to have reasoned debate and rational communication, which is his premise for asserting that logic is optional. He's being illogical...

Propositions

A *proposition* is a statement which is either true or false. The proposition is the meaning of the statement, not the precise arrangement of words used to convey that meaning.

For example, "There exists an even prime number⁵ greater than two" is a proposition. (A false one, in this case.) "An even prime number greater than two exists" is the same proposition, re-worded.

Unfortunately, it's very easy to change the meaning of a statement by rephrasing it. It's generally safer to consider the wording of a proposition as significant. It's possible to use formal linguistics to analyze and re-phrase a statement without changing its meaning, but how to do so is outside the scope of this document.⁶

Premises

A deductive argument has a number of assumptions that the argument is built upon. These are called *premises*. They are the reasons for accepting the argument. Premises are only premises in the context of a particular argument. They might be conclusions in another argument.

You should always state the premises of your argument explicitly; this is the principle of *audiatur et altera pars*. Failing to state your assumptions is often viewed as suspicious, and will likely reduce the acceptance of your argument.

The premises of an argument are often introduced with words such as "Assume...", "Since...", "Obviously..." and "Because...." It's a good idea to get your opponent to agree with the premises of your argument before proceeding any further.

The word "obviously" is also viewed with suspicion. It is occasionally used to persuade people to accept false statements, rather than admit that they don't understand why something is 'obvious'. So don't be afraid to question statements which people tell you are 'obvious' – when you've heard the explanation you can always say something like "You're right, now that I think about it that way, it *is* obvious."

Inference

Once the premises have been agreed to, the argument proceeds via a step-by-step process called *inference*.

⁵ A prime number is divisible only by itself and 1. By definition, a prime number cannot be even; otherwise it could be divided by 2.

⁶ The argument "All dogs are hairy, all canines are furry, therefore all dogs are canines" could be changed to "All dogs are hairy, all canines are hairy, therefore all dogs are canines." The concluding statement is true, but it is an invalid argument, because not all hairy animals are dogs or canines. "All dogs are canines. All canines are hairy. Therefore all dogs are hairy" is a valid argument.

In an inference, you start with one or more propositions which have been accepted; you then use those propositions to arrive at a new proposition. If the inference is valid, that new proposition should also be accepted. You can use the new proposition for another inference later on.

So initially, you can only *infer* things from the premises of the argument. But as the argument proceeds, the number of statements available for inference increases.

There are various kinds of valid inferences - and also some invalid kinds, which we'll look at later in this document. The steps of an inference are often indicated by phrases like "therefore..." or "...implies that..."

Conclusion

Hopefully you will arrive at a proposition which is the conclusion of the argument – the result you are trying to prove. The conclusion is the result of the final step of inference. It's only a conclusion in the context of a particular argument; it could be a premise or an assumption in another argument.

The conclusion is said to be *affirmed* on the basis of the premises, and the inference drawn from them. This is a subtle point which deserves further explanation.

Implication in detail

Clearly you can build a valid argument from true premises, and arrive at a true conclusion. You can also build a valid argument from false premises, and arrive at a false conclusion.

The tricky part is that you can start with false premises, proceed via valid inference, and reach a *true* conclusion. For example:

- Premise: All fish live in the ocean
- Premise: Sea otters are fish
- Conclusion: Therefore sea otters live in the ocean

There's one thing you can't do, though: start from true premises, proceed via valid deductive inference, and reach a false conclusion.

We can summarize these results in a "truth table" for implication. The symbol " \Rightarrow " denotes implication; "A" is the premise, "B" the conclusion.

Truth Table for Implication

Premise	Conclusion	Inference
A	B	A \Rightarrow B
false	False	true
false	True	true
true	False	false
true	True	true

- If the premises are false and the inference is valid, the conclusion can be true or false. (Lines 1 and 2.)
- If the premises are true and the conclusion is false, the inference *must* be invalid. (Line 3.)
- If the premises are true and the inference is valid, the conclusion *must* be true. (Line 4.)

So *the fact that an argument is valid doesn't necessarily mean that its conclusion holds* - it may have started from false premises.

If an argument is valid, and the premises are true, then it is called a *sound* argument. A sound argument *must* arrive at a true conclusion.

Example argument

Here's an example of an argument which is valid, and which may or may not be sound:

1. Premise: Every event has a cause
2. Premise: The universe has a beginning
3. Premise: All beginnings involve an event
4. Inference: This implies that the beginning of the universe involved an event
5. Inference: Therefore the beginning of the universe had a cause
6. Conclusion: The universe had a cause

The proposition in line 4 is inferred from lines 2 and 3. Line 1 is then used, with the proposition derived in line 4, to infer a new proposition in line 5. The result of the inference in line 5 is then re-stated (in slightly simplified form) as the conclusion.

Spotting arguments

Spotting an argument is harder than spotting premises or a conclusion. Lots of people shower their writing with assertions, without ever producing anything you might reasonably call an argument.

Sometimes arguments don't follow the pattern described above. For example, people may state their conclusions first, and then justify them afterwards. This is valid, but it can be a little confusing.

To make the situation worse, some statements look like arguments but aren't. For example:

"If the Bible is accurate, Jesus must either have been insane, an evil liar, or the Son of God."

That's not an argument; it's a conditional statement. It doesn't state the premises necessary to support its conclusion, and even if you add those assertions it suffers from a number of other flaws which are described in more detail in the [Atheist Arguments](#) document.⁷

An argument is also not the same as an explanation. Suppose that you are trying to argue that Albert Einstein believed in God, and say:

"Einstein made his famous statement 'God does not play dice' because of his belief in God."

That may look like a relevant argument, but it's not; it's an explanation of Einstein's statement. To see this, remember that a statement of the form "X because Y" can be re-phrased as an equivalent statement, of the form "Y therefore X." Doing so gives us:

"Einstein believed in God, therefore he made his famous statement 'God does not play dice'."

Now it's clear that the statement, which looked like an argument, is actually assuming the result which it is supposed to be proving, in order to explain the Einstein quote.

Furthermore, Einstein did not believe in a personal God concerned with human affairs.

Further reading

We've outlined the structure of a sound deductive argument, from premises to conclusion. But ultimately, the conclusion of a valid logical argument is only as compelling as the premises you started from. Logic in itself doesn't solve the problem of verifying the basic assertions which support arguments; for that, we need some other tool.

The dominant means of verifying basic assertions is scientific enquiry. However, the philosophy of science and the scientific method are huge topics which are quite beyond the scope of this document.

⁷ It has been included in this document. It immediately follows this article.

Fallacies

There are a number of common pitfalls to avoid when constructing a deductive argument; they're known as *fallacies*. In everyday English, we refer to many kinds of mistaken beliefs as fallacies; but in logic, the term has a more specific meaning: a fallacy is a technical flaw which makes an argument unsound or invalid.

(Note that you can criticize more than just the soundness of an argument. Arguments are almost always presented with some specific purpose in mind -- and the intent of the argument may also be worthy of criticism.)

Arguments which contain fallacies are described as *fallacious*. They often appear valid and convincing; sometimes only close inspection reveals the logical flaw.

Below is a list of some common fallacies, and also some rhetorical devices often used in debate. The list isn't intended to be exhaustive; the hope is that if you learn to recognize some of the more common fallacies, you'll be able to avoid being fooled by them.

[The Nizkor Project](http://www.nizkor.org/) at <<http://www.nizkor.org/>> has another excellent [list of logical fallacies](#). The reference works mentioned above also all contain fallacy lists.

Sadly, many of the examples below have been taken directly from Usenet, though some have been rephrased for the sake of clarity.

List of Fallacies

Accent

Accent is a form of fallacy through shifting meaning. In this case, the meaning is changed by altering which parts of a statement are emphasized. For example:

"We should not speak **ill** of our friends" [but we can speak well of them.]

and

"We should not speak ill of our **friends**" [but we can speak ill of our enemies.]

Be particularly wary of this fallacy on the net, where it's easy to misread the emphasis of what's written.

Ad hoc

As mentioned earlier, there is a difference between argument and explanation. If we're interested in establishing A, and B is offered as evidence, the statement "A because B" is an argument. If we're trying to establish the truth of B, then "A because B" is not an argument, it's an explanation. [A made-for-the-moment explanation or excuse]

The *Ad Hoc* fallacy is to give an after-the-fact explanation which doesn't apply to other situations. Often this ad hoc explanation will be dressed up to look like an argument. For example, if we assume that God treats all people equally, then the following is an ad hoc explanation:

"I was healed from cancer."

"Praise the Lord, then. He is your healer."

"So, will He heal others who have cancer?"

"Er... The ways of God are mysterious."

Affirmation of the consequent

This fallacy is an argument of the form "A implies B, B is true, therefore A is true." To understand why it is a fallacy, examine the [truth table for implication](#) given earlier. Here's an example:

"If the universe had been created by a supernatural being, we would see order and organization everywhere. And we do see order, not randomness -- so it's clear that the universe had a creator."

This is the converse of *Denial of the Antecedent*.

Amphiboly

Amphiboly occurs when the premises used in an argument are ambiguous because of careless or ungrammatical phrasing. For example:

Premise: "Belief in God fills a much-needed gap."

Premise: "Christ benefits everyone."

Anecdotal evidence

One of the simplest fallacies is to rely on anecdotal evidence. For example:

"There's abundant proof that God exists and is still performing miracles today. Just last week I read about a girl who was dying of cancer. Her whole family went to church and prayed for her, and she was cured."

It's quite valid to use personal experience to illustrate a point; but such anecdotes don't actually prove anything to anyone. Your friend may say he met Elvis in the supermarket, but those who haven't had the same experience will require more than your friend's anecdotal evidence to convince them.

Anecdotal evidence can seem very compelling, especially if the audience *wants* to believe it. This is part of the explanation for urban legends; stories which are verifiably false have been known to circulate as anecdotes for years.

Argumentum ad antiquitatem

This is the fallacy of asserting that something is right or good simply because it's old, or because "that's the way it's always been." The opposite of *Argumentum ad Novitatem*.

"For thousands of years Christians have believed in Jesus Christ. Christianity must be true, to have persisted so long even in the face of persecution."

Argumentum ad baculum / Appeal to force

An Appeal to Force happens when someone resorts to force (or the threat of force) to try and push others to accept a conclusion. This fallacy is often used by politicians, and can be summarized as "might makes right." The threat doesn't have to come directly from the person arguing. For example:

"... Thus there is ample proof of the truth of the Bible. All those who refuse to accept that truth will burn in Hell."

"... In any case, I know your phone number and I know where you live. Have I mentioned I am licensed to carry concealed weapons?"

Argumentum ad crumenam

The fallacy of believing that money is a criterion of correctness; that those with more money are more likely to be right. The opposite of Argumentum ad Lazarum. Example:

"[Microsoft](#) software is undoubtedly superior; why else would Bill Gates have got so rich?"

Argumentum ad hominem

Argumentum ad hominem literally means "argument directed at the man"; there are two varieties.

The first is the **abusive** form. If you refuse to accept a statement, and justify your refusal by criticizing the person who made the statement, then you are guilty of *abusive argumentum ad hominem*. For example:

"You claim that atheists can be moral -- yet I happen to know that you abandoned your wife and children."

This is a fallacy because the truth of an assertion doesn't depend on the virtues of the person asserting it. A less blatant *argumentum ad hominem* is to reject a proposition based on the fact that it was also asserted by some other easily criticized person. For example:

"Therefore we should close down the church? Hitler and Stalin would have agreed with you."

A second form of *argumentum ad hominem* is to try and persuade someone to accept a statement you make, by referring to that person's particular circumstances. For example:

"Therefore it is perfectly acceptable to kill animals for food. I hope you won't argue otherwise, given that you're quite happy to wear leather shoes."

This is known as **circumstantial** *argumentum ad hominem*. The fallacy can also be used as an excuse to reject a particular conclusion. For example:

"Of course you'd argue that positive discrimination is a bad thing. You're white."

This particular form of *Argumentum ad Hominem*, when you allege that someone is rationalizing a conclusion for selfish reasons, is also known as "poisoning the well."

It's not always invalid to refer to the circumstances of an individual who is making a claim. If someone is a known perjurer or liar, that fact will reduce their credibility as a witness. It won't, however, prove that their testimony is false in this case. It also won't alter the soundness of any logical arguments they may make.

Argumentum ad ignorantiam

Argumentum ad ignorantiam means "argument from ignorance." The fallacy occurs when it's argued that something must be true, simply because it hasn't been proved false. Or, equivalently, when it is argued that something must be false because it hasn't been proved true.

(Note that this isn't the same as *assuming* something is false until it has been proved true. In law, for example, you're generally assumed innocent until proven guilty.)

Here are a couple of examples:

"Of course the Bible is true. Nobody can prove otherwise."

"Of course telepathy and other psychic phenomena do not exist. Nobody has shown any proof that they are real."

In scientific investigation, if it is known that an event would produce certain evidence of its having occurred, the absence of such evidence can validly be used to infer that the event didn't occur. It does not prove it with certainty, however.

For example:

"A flood as described in the Bible would require an enormous volume of water to be present on the earth. The earth doesn't have a tenth as much water, even if we count that which is frozen into ice at the poles. Therefore no such flood occurred."

It is, of course, possible that some unknown process occurred to remove the water. Good science would then demand a plausible testable theory to explain how it vanished.

Of course, the history of science is full of logically valid bad predictions. In 1893, the Royal Academy of Science were convinced by Sir Robert Ball that communication with the planet Mars was a physical impossibility, because it would require a flag as large as Ireland, which it would be impossible to wave. [[Fortean Times](#) Number 82.]

See also *Shifting the Burden of Proof* [below].

Argumentum ad lazarum

The fallacy of assuming that someone poor is sounder or more virtuous than someone who's wealthier. This fallacy is the opposite of the *Argumentum ad Crumenam*. For example:

"Monks are more likely to possess insight into the meaning of life, as they have given up the distractions of wealth."

Argumentum ad logicam

This is the "fallacy fallacy" of arguing that a proposition is false because it has been presented as the conclusion of a fallacious argument. Remember always that fallacious arguments can arrive at true conclusions.

"Take the fraction 16/64. Now, cancelling a six on top and a six on the bottom, we get that $16/64 = 1/4$."

"Wait a second! You can't just cancel the six!"

"Oh, so you're telling us 16/64 is not equal to 1/4, are you?"

Argumentum ad misericordiam

This is the Appeal to Pity, also known as Special Pleading. The fallacy is committed when someone appeals to pity for the sake of getting a conclusion accepted. For example:

"I did not murder my mother and father with an axe! Please don't find me guilty; I'm suffering enough through being an orphan."

Argumentum ad nauseam

This is the incorrect belief that an assertion is more likely to be true, or is more likely to be accepted as true, the more often it is heard. So an *Argumentum ad Nauseam* is one that employs constant repetition in asserting something; saying the same thing over and over again until you're sick of hearing it. [Say a lie often enough, and loud enough, and people will think it's true].

On Usenet, your argument is often less likely to be heard if you repeat it over and over again, as people will tend to put you in their kill files.

Argumentum ad novitatem

This is the opposite of the *Argumentum ad Antiquitatem*; it's the fallacy of asserting that something is better or more correct simply because it is new, or newer than something else.

"BeOS is a far better choice of operating system than OpenStep, as it has a much newer design."

Argumentum ad numerum

This fallacy is closely related to the *argumentum ad populum*. It consists of asserting that the more people who support or believe a proposition, the more likely it is that that proposition is correct. For example:

"The vast majority of people in this country believe that capital punishment has a noticeable deterrent effect. To suggest that it doesn't in the face of so much evidence is ridiculous."

"All I'm saying is that thousands of people believe in pyramid power, so there must be something to it."

Argumentum ad populum

This is known as Appealing to the Gallery, or Appealing to the People. You commit this fallacy if you attempt to win acceptance of an assertion by appealing to a large group of people. This form of fallacy is often characterized by emotive language. For example:

"Pornography must be banned. It is violence against women."

"For thousands of years people have believed in Jesus and the Bible. This belief has had a great impact on their lives. What more evidence do you need that Jesus was the Son of God? Are you trying to tell those people that they are all mistaken fools?"

Argumentum ad verecundiam

The Appeal to Authority uses admiration of a famous person to try and win support for an assertion. For example:

"Isaac Newton was a genius and he believed in God."

This line of argument isn't always completely bogus when used in an inductive argument; for example, it may be relevant to refer to a widely-regarded authority in a particular field, if you're discussing that subject. For example, we can distinguish quite clearly between:

"Hawking has concluded that black holes give off radiation"

and

"Penrose has concluded that it is impossible to build an intelligent computer"

Hawking is a physicist, and so we can reasonably expect his opinions on black hole radiation to be informed. Penrose is a mathematician, so it is questionable whether he is well-qualified to speak on the subject of machine intelligence.

Audiatur et altera pars

Often, people will argue from assumptions which they don't bother to state. The principle of *Audiatur et Altera Pars* is that all of the premises of an argument should be stated explicitly. It's not strictly a fallacy to fail to state all of your assumptions; however, it's often viewed with suspicion.

Bifurcation

Also referred to as the "black and white" fallacy and "false dichotomy", *bifurcation* occurs if someone presents a situation as having only two alternatives, where in fact other alternatives exist or can exist. For example:

"Either man was created, as the Bible tells us, or he evolved from inanimate chemicals by pure random chance, as scientists tell us. The latter is incredibly unlikely, so..."

Circulus in demonstrando

This fallacy occurs if you assume as a premise the conclusion which you wish to reach. Often, the proposition is rephrased so that the fallacy appears to be a valid argument. For example:

"Homosexuals must not be allowed to hold government office. Hence any government official who is revealed to be a homosexual will lose his job. Therefore homosexuals will do anything to hide their secret, and will be open to blackmail. Therefore homosexuals cannot be allowed to hold government office."

Note that the argument is entirely circular; the premise is the same as the conclusion. An argument like the above has actually been cited as the reason for the British Secret Services' official ban on homosexual employees.

Circular arguments are surprisingly common, unfortunately. If you've already reached a particular conclusion once, it's easy to accidentally make it an assertion when explaining your reasoning to someone else.

Complex question / Fallacy of interrogation / Fallacy of presupposition

This is the interrogative form of *Begging the Question*. One example is the classic loaded question:

"Have you stopped beating your wife?"

The question presupposes a definite answer to another question which has not even been asked. This trick is often used by lawyers in cross-examination, when they ask questions like:

"Where did you hide the money you stole?"

Similarly, politicians often ask loaded questions such as:

"How long will this EU interference in our affairs be allowed to continue?"

or

"Does the Chancellor plan two more years of ruinous privatization?"

Another form of this fallacy is to ask for an explanation of something which is untrue or not yet established.

Fallacies of composition

The *Fallacy of Composition* is to conclude that a property shared by a number of individual items, is also shared by a collection of those items; or that a property of the parts of an object, must also be a property of the whole thing. Examples:

"The bicycle is made entirely of low mass components, and is therefore very lightweight."

"A car uses less petrochemicals and causes less pollution than a bus. Therefore cars are less environmentally damaging than buses."

A related form of fallacy of composition is the "just" fallacy, or *fallacy of mediocrity*. This is the fallacy that assumes that any given member of a set must be limited to the attributes that are held in common with all the other members of the set. Example:

"Humans are just animals, so we should not concern ourselves with justice; we should just obey the law of the jungle."

Here the fallacy is to reason that because we are animals, we can have only properties which animals have; that nothing can distinguish us as a special case.

Converse accident / Hasty generalization

This fallacy is the reverse of the *Fallacy of Accident*. It occurs when you form a general rule by examining only a few specific cases which aren't representative of all possible cases. For example:

"Jim Bakker was an insincere Christian. Therefore all Christians are insincere."

Converting a conditional

This fallacy is an argument of the form "If A then B, therefore if B then A."

"If educational standards are lowered, the quality of argument seen on the Internet worsens. So if we see the level of debate on the net get worse over the next few years, we'll know that our educational standards are still falling."

This fallacy is similar to the *Affirmation of the Consequent*, but phrased as a conditional statement.

Cum hoc ergo propter hoc

This fallacy is similar to *post hoc ergo propter hoc*. The fallacy is to assert that because two events occur together, they must be causally related. It's a fallacy because it ignores other factors that may be the cause(s) of the events.

"Literacy rates have steadily declined since the advent of television. Clearly television viewing impedes learning."

This fallacy is a special case of the more general *non causa pro causa*.

Denial of the antecedent

This fallacy is an argument of the form "A implies B, A is false, therefore B is false." The [truth table for implication](#) makes it clear why this is a fallacy.

Note that this fallacy is different from *Non Causa Pro Causa*. That has the form "A implies B, A is false, therefore B is false", where A does *not* in fact imply B at all. Here, the problem isn't that the implication is invalid; rather it's that the falseness of A doesn't allow us to deduce anything about B.

"If the God of the Bible appeared to me, personally, that would certainly prove that Christianity was true. But God has never appeared to me, so the Bible must be a work of fiction."

This is the converse of the fallacy of *Affirmation of the Consequent*.

The fallacy of accident / Sweeping generalization / Dicto simpliciter

A sweeping generalization occurs when a general rule is applied to a particular situation, but the features of that particular situation mean the rule is inapplicable. It's the error made when you go from the general to the specific. For example:

"Christians generally dislike atheists. You are a Christian, so you must dislike atheists."

This fallacy is often committed by people who try to decide moral and legal questions by mechanically applying general rules.

Fallacy of division

The fallacy of division is the opposite of the *Fallacy of Composition*. It consists of assuming that a property of some thing must apply to its parts; or that a property of a collection of items is shared by each item.

"You are studying at a rich college. Therefore you must be rich."

"Ants can destroy a tree. Therefore this ant can destroy a tree."

Equivocation / Fallacy of four terms

Equivocation occurs when a key word is used with two or more different meanings in the same argument. For example:

"What could be more affordable than free software? But to make sure that it remains free, that users can do what they like with it, we must place a license on it to make sure that it will always be freely redistributable."⁸

One way to avoid this fallacy is to choose your terminology carefully before beginning the argument, and avoid words like "free" which have many meanings.

The extended analogy

The fallacy of the Extended Analogy often occurs when some suggested general rule is being argued over. The fallacy is to assume that mentioning two different situations, in an argument about a general rule, constitutes a claim that those situations are analogous to each other.

Here's real example from an online debate about anti-cryptography legislation:

"I believe it is always wrong to oppose the law by breaking it."

"Such a position is odious: it implies that you would not have supported Martin Luther King."

"Are you saying that cryptography legislation is as important as the struggle for Black liberation? How dare you!"

⁸ The fallacy of four terms refers to the use of a different term with the same meaning as another term in a categorical syllogism; or it can refer to the use of 4 separate terms, each with a different meaning. There should only be 3 terms in a syllogism. If the same *word* is used, but that word can have different *meanings*, then the word is treated as two different terms, which produces the fallacy of four terms. All dogs are *animals*, and all cats are *mammals*, so all dogs are mammals. The four terms are: dogs, animals, cats and mammals. The conclusion is necessarily wrong. If we say that all dogs are *mammals*, and all cats are mammals, so all dogs are *cats*, it no longer has the fallacy of four terms, but it is still wrong.

Ignoratio elenchi / Irrelevant conclusion

The fallacy of Irrelevant Conclusion consists of claiming that an argument supports a particular conclusion when it is actually logically nothing to do with that conclusion.

For example, a Christian may begin by saying that he will argue that the teachings of Christianity are undoubtedly true. If he then argues at length that Christianity is of great help to many people, no matter how well he argues he will not have shown that Christian teachings are true.

Sadly, these kinds of irrelevant arguments are often successful, because they make people to view the supposed conclusion in a more favorable light.

The Natural Law fallacy / Appeal to Nature

The Appeal to Nature is a common fallacy in political arguments. One version consists of drawing an analogy between a particular conclusion, and some aspect of the natural world -- and then stating that the conclusion is inevitable, because the natural world is similar:

"The natural world is characterized by competition; animals struggle against each other for ownership of limited natural resources. Capitalism, the competitive struggle for ownership of capital, is simply an inevitable part of human nature. It's how the natural world works."

Another form of appeal to nature is to argue that because human beings are products of the natural world, we must mimic behavior seen in the natural world, and that to do otherwise is 'unnatural':

"Of course homosexuality is unnatural. When's the last time you saw two animals of the same sex mating?"

Robert Anton Wilson deals with this form of fallacy at length in his book "Natural Law." A recent example of "Appeal to Nature" taken to extremes is The Unabomber Manifesto.

The "No True Scotsman..." fallacy

Suppose I assert that no Scotsman puts sugar on his porridge. You counter this by pointing out that your friend Angus likes sugar with his porridge. I then say "Ah, yes, but no *true* Scotsman puts sugar on his porridge.

This is an example of an *ad hoc* change being used to shore up an assertion, combined with an attempt to *shift the meaning* of the words used in the original assertion; you might call it a combination of fallacies.

Non causa pro causa

The fallacy of Non Causa Pro Causa occurs when something is identified as the cause of an event, but it has not actually been *shown* to be the cause. For example:

"I took an aspirin and prayed to God, and my headache disappeared. So God cured me of the headache."

This is known as a false cause fallacy. Two specific forms of non causa pro causa fallacy are the *cum hoc ergo propter hoc* and *post hoc ergo propter hoc* fallacies.

Non sequitur

A non sequitur is an argument where the conclusion is drawn from premises which aren't logically connected with it. For example:

"Since Egyptians did so much excavation to construct the pyramids, they were well versed in paleontology."

(Non sequiturs are an important ingredient in a lot of humor. They're still fallacies, though.)

Petitio principii / Begging the question

This fallacy occurs when the premises are at least as questionable as the conclusion reached. Typically the premises of the argument implicitly assume the result which the argument purports to prove, in a disguised form. For example:

"The Bible is the word of God. The word of God cannot be doubted, and the Bible states that the Bible is true. Therefore the Bible must be true."

Begging the question is similar to *circulus in demonstrando*, where the conclusion is exactly the same as the premise.

Plurium interrogationum / Many questions

This fallacy occurs when someone demands a simple (or simplistic) answer to a complex question.

"Are higher taxes an impediment to business or not? Yes or no?"

Post hoc ergo propter hoc

The fallacy of *Post Hoc Ergo Propter Hoc* occurs when something is assumed to be the cause of an event merely because it happened before that event. For example:

"The Soviet Union collapsed after instituting state atheism. Therefore we must avoid atheism for the same reasons."

This is another type of *false cause fallacy*.

Red herring

This fallacy is committed when someone introduces irrelevant material to the issue being discussed, so that everyone's attention is diverted away from the points made, towards a different conclusion.

"You may claim that the death penalty is an ineffective deterrent against crime -- but what about the victims of crime? How do you think surviving family members feel when they see the man who murdered their son kept in prison at their expense? Is it right that they should pay for their son's murderer to be fed and housed?"

Reification / Hypostatization

Reification occurs when an abstract concept is treated as a concrete thing.

"I noticed you described him as 'evil'. Where does this 'evil' exist within the brain? You can't show it to me, so I claim it doesn't exist, and no man is 'evil'."

Shifting the burden of proof

The burden of proof is always on the person asserting something. Shifting the burden of proof, a special case of *Argumentum ad Ignorantiam*, is the fallacy of putting the burden of proof on the person who denies or questions the assertion. The source of the fallacy is the assumption that something is true unless proven otherwise.

"OK, so if you don't think the grey aliens have gained control of the US government, can you prove it?"

The slippery slope argument

This argument states that should one event occur, so will other harmful events. There is no proof made that the harmful events are caused by the first event. For example:

"If we legalize marijuana, then more people would start to take crack and heroin, and we'd have to legalize those too. Before long we'd have a nation full of drug-addicts on welfare. Therefore we cannot legalize marijuana."

Straw man

The straw man fallacy is when you misrepresent someone else's position so that it can be attacked more easily, knock down that misrepresented position, then conclude that the original position has been demolished. It's a fallacy because it fails to deal with the actual arguments that have been made.

"To be an atheist, you have to believe with absolute certainty that there is no God. In order to convince yourself with absolute certainty, you must examine all the Universe and all the places where God could possibly be. Since you obviously haven't, your position is indefensible."

The above straw man argument appears at about once a week on the net.

Tu quoque

This is the famous "you too" fallacy. It occurs if you argue that an action is acceptable because your opponent has performed it. For instance:

"You're just being randomly abusive."

"So? You've been abusive too."

This is a personal attack, and is therefore a special case of *Argumentum ad Hominem*.

Fallacy of the Undistributed Middle / "A is based on B" fallacies / "...is a type of..." fallacies

These fallacies occur if you attempt to argue that things are in some way similar, but you don't actually specify in what way they are similar. Examples:

"Isn't history based upon faith? If so, then isn't the Bible also a form of history?"

"Islam is based on faith, Christianity is based on faith, so isn't Islam a form of Christianity?"

"Cats are a form of animal based on carbon chemistry, dogs are a form of animal based on carbon chemistry, so aren't dogs a form of cat?"

Source:

<http://www.infidels.org/news/atheism/logic.html>

Common Arguments

Introduction

This document contains responses to points which have been brought up repeatedly in the Usenet newsgroups devoted to discussion of atheism. Points covered here are ones which are not covered in the document "An Introduction to Atheism";⁹ it's recommended that you read that document first.

These answers are not intended to be exhaustive or definitive. The purpose of FAQ documents is not to stifle debate, but to raise its level. If you have something to say concerning one of these questions and which isn't covered by the answer given, please feel free to make your point in the newsgroup.

Adolf Hitler was an atheist!

"Hitler was an atheist, and look at what he did!"

Adolf Hitler was emphatically not an atheist. As he said himself:

The folkish-minded man, in particular, has the sacred duty, each in his own denomination, of making people stop just talking superficially of God's will, and actually fulfil God's will, and not let God's word be desecrated. [original italics]

For God's will gave men their form, their essence, and their abilities. Anyone who destroys His work is declaring war on the Lord's creation, the divine will. Therefore, let every man be active, each in his own denomination if you please, and let every man take it as his first and most sacred duty to oppose anyone who in his activity by word or deed steps outside the confines of his religious community and tries to butt into the other.

[...]

Hence today I believe that I am acting in accordance with the will of the Almighty Creator: *by defending myself against the Jew, I am fighting for the work of the Lord.* [original italics]

[Adolf Hitler, from "*Mein Kampf*", translation by Ralph Mannheim.]

Hitler certainly appeared at times to be a theist, and claimed to be a Christian:

The Führer made it known to those entrusted with the Final Solution that the killings should be done as humanely as possible. This was in line with his conviction that he was observing God's injunction to cleanse the world of vermin. Still a member in good standing of the Church of Rome despite detestation of its hierarchy ("I am now as before a Catholic and will always remain so" [quoting Hitler]), he carried within him its teaching that the Jew was the killer of God. The extermination, therefore, could be done without a

⁹ That was the first article in this document.

twinge of conscience since he was merely acting as the avenging hand of God -- so long as it was done impersonally, without cruelty.

[John Toland (Pulitzer Prize winner),
from "Adolf Hitler", pp 507, talking about the Autumn of 1941.]

The "I am now as before a Catholic..." quotation from Hitler was recorded in the diary of Gerhard Engel, an SS Adjutant, in October 1941. Hitler was speaking in private, not before a mass audience, and so it is difficult to dismiss the comment as propaganda lies.

Of course, someone bad believing something does not make that belief wrong. It's also entirely possible that Hitler was lying when he claimed to believe in God. We certainly can't conclude that he's an atheist, though.

The Bible proves it

"In the Bible it says that..."

Most atheists feel that the Bible is of questionable accuracy, as it was written thousands of years ago by many authors who were recording oral tradition that existed many years before. Thus, any claimed 'truth' in it is of questionable legitimacy. This isn't to say that The Bible has no truth in it; simply that any truth must be examined before being accepted.

Many atheists also feel that because any passage is subject to "interpretation", any claim that a passage 'means' one thing and one thing only is not legitimate. Note that this feeling tends to extend to other books.

It is also remarkable to many atheists that theists tend to ignore other equally plausible religious books in favor of those of their own religion.

Pascal's Wager (God is a safe bet)

"If you believe in God and turn out to be incorrect, you have lost nothing -- but if you don't believe in God and turn out to be incorrect, you will go to hell. Therefore it is foolish to be an atheist."

This argument is known as Pascal's Wager. It has several flaws.

Firstly, it does not indicate which religion to follow. Indeed, there are many mutually exclusive and contradictory religions out there. This is often described as the "avoiding the wrong hell" problem. If a person is a follower of one religion, he may end up in another religion's version of hell.

Even if we assume that there's a God, that doesn't imply that there's one unique God. Which should we believe in? If we believe in all of them, how will we decide which commandments to follow?

Secondly, the statement that "If you believe in God and turn out to be incorrect, you have lost nothing" is not true. Suppose you're believing in the wrong God -- the true God might punish you for your foolishness. Consider also the deaths that have resulted from people rejecting medicine in favor of prayer.

Another flaw in the argument is that it is based on the assumption that the two possibilities are equally likely -- or at least, that they are of comparable likelihood. If, in fact, the possibility of there being a God is close to zero, the argument becomes much less persuasive. So sadly the argument is only likely to convince those who believe already.

Also, many feel that for intellectually honest people, belief is based on evidence, with some amount of intuition. It is not a matter of will or cost-benefit analysis.

Formally speaking, the argument consists of four statements:

1. One does not know whether God exists.
2. Not believing in God is bad for one's eternal soul if God does exist.
3. Believing in God is of no consequence if God does not exist.
4. Therefore it is in one's interest to believe in God.

There are two approaches to the argument. The first is to view Statement 1 as an assumption, and Statement 2 as a consequence of it. The problem is that there's really no way to arrive at Statement 2 from Statement 1 via simple logical inference. The statements just don't follow on from each other.

The alternative approach is to claim that Statements 1 and 2 are both assumptions. The problem with this is that Statement 2 is then basically an assumption which states the Christian position, and only a Christian will agree with that assumption. The argument thus collapses to "If you are a Christian, it is in your interests to believe in God" -- a rather vacuous tautology, and not the way Pascal intended the argument to be viewed. Also, if we don't even know that God exists, why should we take Statement 2 over some similar assumption? Isn't it just as likely that God would be angry at people who chose to believe for personal gain? If God is omniscient, he will certainly know who really believes and who believes as a wager. He will spurn the latter... assuming he actually cares at all whether people truly believe in him.

Some have suggested that the person who chooses to believe based on Pascal's Wager, can then somehow make the transition to *truly* believing. Unfortunately, most atheists don't find it possible to make that leap.

In addition, this hypothetical God may require more than simple belief; almost all Christians believe that the Christian God requires an element of trust and obedience from his followers. That destroys the assertion that if you believe but are wrong, you lose nothing.

Finally, if this God is a fair and just God, surely he will judge people on their actions in life, not on whether they happen to believe in him. A God who sends good and kind people to hell is not one most atheists would be prepared to consider worshipping.

Lord, Liar or Lunatic?

"Did Jesus exist? If not, then there's not much to talk about. If he did, he called himself Lord. This means that either:

- He was Lord,
- He was a liar, or
- He was a lunatic.

It's unlikely he was a liar, given his morals as described in the Bible, and his behavior doesn't sound like that of a lunatic. So surely we must conclude that he was Lord?"

Firstly, note that this argument hinges on the assumption that Jesus did in fact exist. This is at least debatable.

Secondly, the argument attempts a logical fallacy which we might call "trifurcation", by analogy with "bifurcation" (see the "[Constructing a Logical Argument](#)" document). That is, the argument attempts to restrict us to three possibilities, when in fact there are many more.

Two of the more likely alternatives are:

1. He was misquoted in the Bible, and did not claim to be Lord.
2. The stories about him were made up, or embroidered with fictitious material by the early Christians.

Note that in the New Testament Jesus does not say that he is God, although John 10:30 claims that he said "I and my father are one". The claim that Jesus was God was first made after the death of Jesus and his twelve disciples.

Finally, note that the possibility that he was a "lunatic" is not easily discountable. Even today in the western world there are numerous people who have managed to convince hundreds or thousands of followers that they are the Lord or his One True Prophet. People like L. Ron Hubbard, Sun Myung Moon, Jim Jones and David Koresh continue to peddle their divinity. In more superstitious countries, there are literally hundreds of present-day messiahs.

Incidentally, the "Lord, Liar or Lunatic" argument is based on arguments in the book "Mere Christianity" by C.S. Lewis, the well known author and committed Christian. He wrote many books containing Christian apologia, and also a number of fantasy and SF novels influenced by Christian themes. His most famous books, the *Narnia* series of novels, are a fantasy retelling of many aspects of Christian faith, with Aslan taking the place of Jesus. Amusingly, some Christian fundamentalists in the USA have attempted to have Lewis's books banned from schools, alleging that they are "Satanic" in influence.

What is Occam's Razor?

"People keep talking about Occam's Razor. What is it?"

William of Occam formulated a principle which has become known as Occam's Razor. In its original form, it said "Do not multiply entities unnecessarily." That is, if you can explain something without supposing the existence of some entity, then do so.

Nowadays when people refer to Occam's Razor, they often express it more generally, for example as "Take the simplest solution".

The relevance to atheism is that we can look at two possible explanations for what we see around us:

- There is an incredibly intricate and complex universe out there, which came into being as a result of natural processes.
- There is an incredibly intricate and complex universe out there, and there is also a God who created the universe. Clearly this God must be of non-zero complexity.

Given that both explanations fit the facts, Occam's Razor might suggest that we should take the simpler of the two -- solution number one. Unfortunately, some argue that there is a third even more simple solution:

- There isn't an incredibly intricate and complex universe out there. We just imagine that there is.

This third option leads us logically towards solipsism, which many people find unacceptable.

Why it's good to believe in Jesus

"I want to tell people about the virtues and benefits of my religion."

Preaching is not appreciated.

Feel free to talk about your religion, but please do not write postings that are on a "conversion" theme. Such postings do not belong on atheist newsgroups, and will be rejected from alt.atheism.moderated or soc.atheism. Try the newsgroup talk.religion.misc.

You would doubtless not welcome postings from atheists to your favorite newsgroup in an attempt to convert you; please do unto others as you would have them do unto you!

Often theists make their basic claims about God in the form of lengthy analogies or parables. Be aware that atheists have heard of God and know the basic claims about him; if the sole purpose of your parable is to tell atheists that God exists and brings salvation, you may as well not post it, since it tells us nothing we have not been told before.

Why I know that God exists

"I *know* from personal experience and prayer that God exists."

Just as many theists have personal evidence that the being they worship exists, so many atheists have personal evidence that such beings do not exist. That evidence varies from person to person.

Furthermore, without wishing to dismiss your evidence out of hand, many people have claimed all kinds of unlikely things -- that they have been abducted by UFOs, visited by the ghost of Elvis, and so on.

Einstein and "God does not play dice"

"Albert Einstein believed in God. Do you think you're cleverer than him?"

Einstein did once comment that "God does not play dice [with the universe]". This quotation is commonly mentioned to show that Einstein believed in the Christian God. Used this way, it is out of context; it refers to Einstein's refusal to accept some aspects of the most popular interpretations of quantum theory. Furthermore, Einstein's religious background was Jewish rather than Christian.

A better quotation showing what Einstein thought about God is the following:

"I believe in Spinoza's God who reveals himself in the orderly harmony of what exists, not in a God who concerns himself with fates and actions of human beings."

Einstein recognized Quantum Theory as the best scientific model for the physical data available. He did not accept claims that the theory was complete, or that probability and randomness were an essential part of nature. He believed that a better, more complete theory would be found, which would have no need for statistical interpretations or randomness.

So far no such better theory has been found, and much evidence suggests that it never will be.

A longer quote from Einstein appears in "*Science, Philosophy, and Religion, A Symposium*", published by the Conference on Science, Philosophy and Religion in Their Relation to the Democratic Way of Life, Inc., New York, 1941. In it he says:

The more a man is imbued with the ordered regularity of all events the firmer becomes his conviction that there is no room left by the side of this ordered regularity for causes of a different nature. For him neither the rule of human nor the rule of divine will exists as an independent cause of natural events. To be sure, the doctrine of a personal God interfering with natural events could never be *refuted* [italics his], in the real sense, by science, for this doctrine can always take refuge in those domains in which scientific knowledge has not yet been able to set foot.

But I am convinced that such behavior on the part of representatives of religion would not only be unworthy but also fatal. For a doctrine which is to maintain itself not in clear light but only in the dark, will of necessity lose its effect on mankind, with incalculable harm to human progress. In their struggle for the ethical good, teachers of religion must have the stature to give up the doctrine of a personal God, that is, give up that source of fear and hope which in the past placed such vast power in the hands of priests. In their labors they will have to avail themselves of those forces which are capable of cultivating the Good, the True, and the Beautiful in humanity itself. This is, to be sure, a more difficult but an incomparably more worthy task...

Einstein has also said:

It was, of course, a lie what you read about my religious convictions, a lie which is being systematically repeated. I do not believe in a personal God and I have never denied this but have expressed it clearly. If something is in me which can be called religious then it is the unbounded admiration for the structure of the world so far as our science can reveal it.

The above quote is from a letter Einstein wrote in English, dated 24 March 1954. It is included in "Albert Einstein: The Human Side", edited by Helen Dukas and Banesh Hoffman, and published by Princeton University Press. Also from the same book:

I do not believe in immortality of the individual, and I consider ethics to be an exclusively human concern with no superhuman authority behind it.

Of course, the fact that Einstein chose not to believe in Christianity does not in itself imply that Christianity is false.

Everyone worships something

"Everyone worships something, whether it's money, power or God."

If that is true, everyone is a polytheist. Theists care just as much about those things that atheists care about. If the atheists' reactions to (for example) their families amount to worship then so do the theists'.

Also, holding something as more important than all other things does not constitute "worship" by any meaningful definition of the word.

The universe is so complex it must have been designed

"The presence of design in the universe proves there is a God. Surely you don't think all this appeared here just by chance?"

This is known as the *Argument From Design*.

It is a matter of dispute whether there is any element of design in the universe. Those who believe that the complexity and diversity of living creatures on the earth is evidence of a creator are best advised to read the newsgroup talk.origins for a while, or consult the archive at <http://www.talkorigins.org/>

There is insufficient space to summarize both sides of that debate here. However, the conclusion is that there is no scientific evidence in favor of so-called Scientific Creationism. Furthermore, there is much evidence, observation and theory that can explain many of the complexities of the universe and life on earth.

The origin of the Argument by Design is a feeling that the existence of something as incredibly intricate as, say, a human is so improbable that surely it can't have come about by chance; that surely there must be some external intelligence directing things so that humans come from the chaos deliberately.

But if human intelligence is so improbable, surely the existence of a mind capable of fashioning an entire universe complete with conscious beings must be immeasurably more unlikely? The approach used to argue in favor of the existence of a creator can be turned around and applied to the Creationist position.

This leads us to the familiar theme of "If a creator created the universe, what created the creator?", but with the addition of spiralling improbability. The only way out is to declare that the creator was not created and just "is" (or "was").

From here we might as well ask what is wrong with saying that the universe just "is" without introducing a creator? Indeed Stephen Hawking, in his book "A Brief History of Time", explains his theory that the universe is closed and finite in extent, with no beginning or end.

The Argument From Design is often stated by analogy, in the so-called Watchmaker Argument. One is asked to imagine that one has found a watch on the beach. Does one assume that it was created by a watchmaker, or that it evolved naturally? Of course one assumes a watchmaker. Yet like the watch, the universe is intricate and complex; so, the argument goes, the universe too must have a creator.

The Watchmaker analogy suffers from three particular flaws, over and above those common to all Arguments By Design. Firstly, a watchmaker creates watches from pre-existing materials, whereas God is claimed to have created the universe from nothing. These two sorts of creation are clearly fundamentally different, and the analogy is therefore rather weak.

Secondly, a watchmaker makes watches, but there are many other things in the world. If we walked further along the beach and found a nuclear reactor, we wouldn't assume it was created by the watchmaker. The argument would therefore suggest a multitude of creators, each responsible for a different part of creation (or a different universe, if you allow the possibility that there might be more than one).

Finally, in the first part of the watchmaker argument we conclude that the watch is not part of nature because it is ordered, and therefore stands out from the randomness of nature. Yet in the second part of the argument, we start from the position that the universe is obviously not random, but shows elements of order. The Watchmaker argument is thus internally inconsistent.

Apart from logical inconsistencies in the watchmaker argument, it's worth pointing out that biological systems and mechanical systems behave very differently. What's unlikely for a pile of gears is not necessarily unlikely for a mixture of biological molecules.

Gödel's Incompleteness Theorem

"Gödel's Incompleteness Theorem demonstrates that it is impossible for the Bible to be both true and complete."

Gödel's First Incompleteness Theorem applies to any consistent formal system which:

- Is sufficiently expressive that it can model ordinary arithmetic
- Has a decision procedure for determining whether a given string is an axiom within the formal system (i.e. is "recursive")

Gödel showed that in any such system S , it is possible to formulate an expression which says "This statement is unprovable in S ".

If such a statement were provable in S , then S would be inconsistent. Hence any such system must either be incomplete or inconsistent. If a formal system is incomplete, then there exist statements within the system which can never be proven to be valid or invalid ('true' or 'false') within the system.

Essentially, Gödel's First Incompleteness Theorem revolves around getting formal systems to formulate a variation on the "Liar Paradox". The classic Liar Paradox sentence in ordinary English is "This sentence is false."

Note that if a proposition is undecidable, the formal system cannot even deduce that it is undecidable. (This is Gödel's Second Incompleteness Theorem, which is rather tricky to prove.)

The logic used in theological discussions is rarely well defined, so claims that Gödel's Incompleteness Theorem demonstrates that it is impossible to prove (or disprove) the existence of God are worthless in isolation.

One can trivially define a formal system in which it is possible to prove the existence of God, simply by having the existence of God stated as an axiom. (This is unlikely to be viewed by atheists as a convincing proof, however.)

It may be possible to succeed in producing a formal system built on axioms that both atheists and theists agree with. It may then be possible to show that Gödel's Incompleteness Theorem holds for that system. However, that would still not demonstrate that it is impossible to prove that God exists within the system. Furthermore, it certainly wouldn't tell us anything about whether it is possible to prove the existence of God generally.

Note also that all of these hypothetical formal systems tell us nothing about the actual existence of God; the formal systems are just abstractions.

Another frequent claim is that Gödel's Incompleteness Theorem demonstrates that a religious text (the Bible, the Book of Mormon or whatever) cannot be both consistent and universally applicable. Religious texts are not formal systems, so such claims are nonsense.

There are a number of books which talk specifically about Gödel's Incompleteness Theorem, and explain concepts such as axiomatic systems, consistency and completeness:

- *Gödel's Proof* by Ernest Nagel and James R. Newman.
A thorough discussion of the argument in Gödel's proof, as well as its limitations; plus an overview of its historical context.
- *Forever Undecided: A Puzzle Guide to Gödel* by Raymond Smullyan.
Through puzzles, Smullyan guides the reader through the basic ideas relevant to Gödel's proof.
- *Gödel's Incompleteness Theorems*, also by Raymond Smullyan.
A more formal, but still very readable, overview of the theorems.

George Bush on atheism and patriotism¹⁰

"Did George Bush really say that atheists should not be considered citizens?"

¹⁰ This is George Bush senior, not George W. Bush.

The following exchange took place at the Chicago airport between Robert I. Sherman of American Atheist Press and George Bush, on August 27 1987. Sherman is a fully accredited reporter, and was present by invitation as a member of the press corps. The Republican presidential nominee was there to announce federal disaster relief for Illinois. The discussion turned to the presidential primary:

RS: "What will you do to win the votes of Americans who are atheists?"

GB: "I guess I'm pretty weak in the atheist community. Faith in God is important to me."

RS: "Surely you recognize the equal citizenship and patriotism of Americans who are atheists?"

GB: "No, I don't know that atheists should be considered as citizens, nor should they be considered patriots. This is one nation under God."

RS: "Do you support as a sound constitutional principle the separation of state and church?"

GB: "Yes, I support the separation of church and state. I'm just not very high on atheists."

UPI reported on May 8, 1989, that various atheist organizations were still angry over the remarks.

The exchange appeared in the Boulder Daily Camera on Monday February 27, 1989. It can also be found in "Free Inquiry" magazine, Fall 1988 issue, Volume 8, Number 4, page 16.

On October 29, 1988, Mr. Sherman had a confrontation with Ed Murnane, co-chairman of the Bush-Quayle '88 Illinois campaign. This concerned a lawsuit Mr. Sherman had filed to stop the Community Consolidated School District 21 (Chicago, Illinois) from forcing his first-grade atheist son to pledge allegiance to the flag of the United States as "one nation under God" (Bush's phrase). The following conversation took place:

RS: "American Atheists filed the Pledge of Allegiance lawsuit yesterday. Does the Bush campaign have an official response to this filing?"

EM: "It's BS."¹¹

RS: "What is BS?"

EM: "Everything that American Atheists does, Rob, is BS."

RS: "Thank you for telling me what the official position of the Bush campaign is on this issue."

EM: "You're welcome."

After Bush's election, American Atheists wrote to Bush asking him to retract his statement. On February 21st 1989, C. Boyden Gray, Counsel to the President, replied

¹¹ Abbreviated from original text for propriety.

on White House stationery that Bush substantively stood by his original statement, and wrote:

"As you are aware, the President is a religious man who neither supports atheism nor believes that atheism should be unnecessarily encouraged or supported by the government."

For further information, contact American Atheist Veterans at the American Atheist Press's Cameron Road address.

I know where hell is!

"I know where Hell is! Hell is in Norway!"

There are several towns called "Hell" in various countries around the world, including Norway and the USA. Whilst this information is mildly amusing the first time one hears it, readers of Usenet are now getting pretty fed up with hearing it every week.

Biblical contradictions wanted

"Does anyone have a list of Biblical contradictions?"

American Atheist Press publish an atheist's handbook detailing Biblical contradictions. See the accompanying document on *Atheist Media* for lists of other such books. Jim Meritt's list of Biblical contradictions is also available in hypertext form. The *Freedom From Religion Foundation* have a list of bible contradictions on their web pages. The address is <http://www.ffrf.org/lfif/contra.html>.

Of course, the newsgroup soc.religion.christian has a selection of files which claim to rebut most of the alleged inconsistencies in the Bible.

The USA is a Christian nation/state

"Because of the religious beliefs of the founding fathers, shouldn't the United States be considered a Christian nation?"

Based upon the writings of several important founding fathers, it is clear that they never intended the US to be a Christian nation. Here are some quotes; there are more in a companion document, and the archives at <ftp.mantis.co.uk> contain still more.

"What influence, in fact, have ecclesiastical establishments had on society? In some instances they have been seen to erect a spiritual tyranny on the ruins of the civil authority; on many instances they have been seen upholding the thrones of political tyranny; in no instance have they been the guardians of the liberties of the people. Rulers who wish to subvert the public liberty may have found an established clergy convenient auxiliaries. A just government, instituted to secure and perpetuate it, needs them not."

[James Madison, "A Memorial and Remonstrance", 1785.]

"I almost shudder at the thought of alluding to the most fatal example of the abuses of grief which the history of mankind has preserved -- the Cross. Consider what calamities that engine of grief has produced!"

[John Adams, in a letter to Thomas Jefferson.]

"History I believe furnishes no example of a priest-ridden people maintaining a free civil government. This marks the lowest grade of ignorance, of which their political as well as religious leaders will always avail themselves for their own purpose."

[Thomas Jefferson to Baron von Humboldt, 1813.]

"I cannot conceive otherwise than that He, the Infinite Father, expects or requires no worship or praise from us, but that He is even infinitely above it."

[Benjamin Franklin, from "*Articles of Belief and Acts of Religion*", Nov. 20, 1728.]

The USA is not a Christian nation/state

"Is it true that George Washington said that the United States is not in any sense founded upon the Christian religion?"

No. The quotation often given is in fact from Article XI of the Treaty of Tripoli (8 Stat 154, Treaty Series 358) Article 11:

As the government of the United States of America is not in any sense founded on the Christian Religion, -- as it has in itself no character or enmity against the laws, religion or tranquility of Musselmen, -- and as the said States never have entered into any war or act of hostility against any Mehomitan nation, it is declared by the parties that no pretext arising from religious opinions shall ever produce an interruption of the harmony existing between the two countries.

The text may be found in the Congressional Record or in treaty collections such as Charles I. Bevans' "*Treaties and Other International Agreements of the United States of America 1776-1949*", vol. 11 (pp. 1070-1080).

The Treaty of Tripoli was signed in Tripoli on November 4th, 1796. The English text of the treaty was approved by the U.S. Senate on June 7, 1797 and ratified by President John Adams on June 10, 1797. It was recently discovered that the US copy of the Arabic version of the treaty not only lacks the quotation, it lacks Article XI altogether. Instead it seems to contain the text of a letter to the Pasha of Tripoli from the Dey of Algiers.

The person who translated the Arabic to English was Joel Barlow, Consul General at Algiers, a close friend of Thomas Paine -- and an opponent of Christianity. It is possible that Barlow made up Article XI, but since there is no Arabic version of that article to be found, it's hard to say. It seems unlikely, however.

In 1806 a new Treaty of Tripoli was ratified which no longer contained the quotation. The 1815 Treaty With Algiers contains a similar article, but does not state that the US government is not founded on religion, only that it is not incompatible with any religion. Ignoring the question of the wording of the Arabic version of the 1796 Treaty of Tripoli, we can conclude that the wording of the English article XI fairly represents the opinion of the time, as it was passed and approved by both the US Senate and the President.

The Bible says 'Thou Shalt Not Kill'...

"The Bible says "Thou shalt not kill", yet many Christians serve in the military. What hypocrites!"

The Hebrew word is 'ratsach'. Although this can mean 'kill', it's one of the words less frequently used to mean 'kill' in the Bible. It can, however, be translated as 'murder'. Most modern translations of the Bible express the commandment as "Thou shalt not murder".

What does 'xian' mean?

"What does the abbreviation 'xian' mean? Is it an insult?"

When writing the name "Christ", it is quite common to abbreviate it to X or x, representing the first letter (chi) of the Greek *XPICTOC* *khristos*. For example, "xmas" is a common abbreviation of "Christmas". "Xian" just means "Christian".

According to the Oxford English Dictionary, the use of the abbreviation "xian" or "xtian" for "Christian" dates back at least as far as 1634. Before that, it was more usual to take the first *two* letters of *XPICTOC*, and write "xpian" for "Christian". Priests would record Christenings using the shorthand "xpen" or "xpn".

So no, it's not an insult.

The Bible says pi is 3!

In [1 Kings 7:23](#), the Bible says:

And he made a molten sea, ten cubits from the one brim to the other: it was round all about, and his height was five cubits: and a line of thirty cubits did compass it round about.

If you make a molten sea with a circumference of thirty cubits, you'll find that the diameter is $30/\pi$ or 9.55 cubits. Or ten cubits, to round to the nearest integer.

In short, the Bible does not say that pi must be three, unless you are going to assume that the numbers given are accurate to more than two significant figures, which is unjustifiable given the wording.

Aren't atheists Satanic?

Atheists don't believe in any kind of supernatural divine being. They view Satan as being every bit as mythological and nonexistent as God.

(This response assumes a Christian view of what's "Satanic"; those who call themselves Satanists often have a very different concept of Satan.)

<http://www.infidels.org/news/atheism/arguments.html#III>