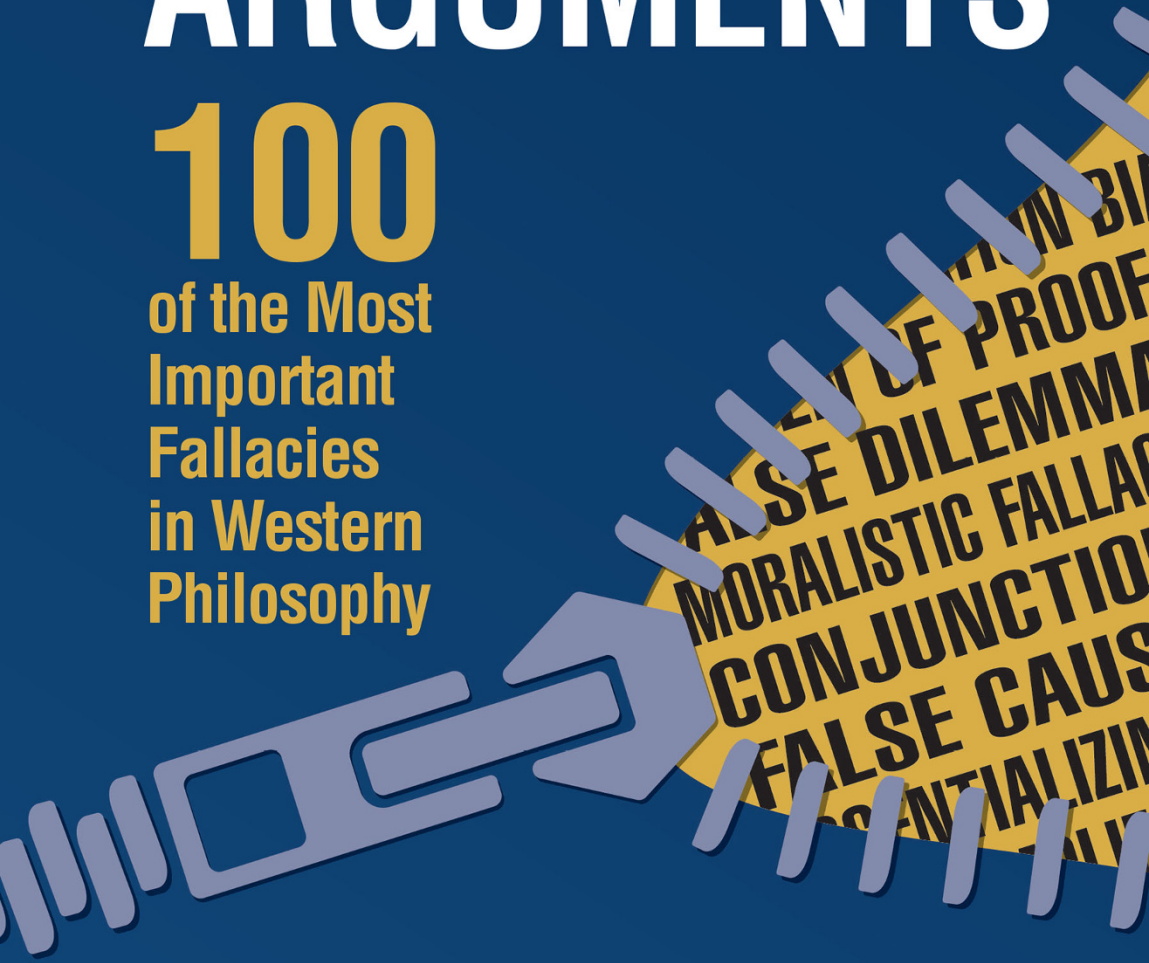
Edited by

Robert Arp, Steven Barbone, and Michael Bruce

BAD ARGUMENTS

100 of the Most Important Fallacies in Western Philosophy



WILEY Blackwell

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Introduction

This introduction provides a context for understanding the nature and purpose of fallacies, to include brief descriptions and discussions of claims, evidence, inference, argument, persuasion, and critical thinking, as well as deductive vs. inductive reasoning and what constitutes a good argument, part of which is recognizing a fallacy and avoiding it.

Claims

We all have thoughts, opinions, and beliefs about ourselves, the world around us, and reality, as we perceive it – John thinks himself to be an honest, hard-working person; Judy is of the opinion that the State of Palestine should be granted full membership in the United Nations (UN); Jim believes that when people die, their souls go to a heavenly place, and so on. We make our thoughts, opinions, and beliefs known in spoken or written form through *claims*, which are statements, propositions, or declarative sentences (or parts of declarative sentences) composed of at least one subject noun phrase and a finite verb. Here are some examples of claims:

> This cake tastes really good to me.
> Some spiders are orange in color.
> Most children are born with two hands.
> The moon appears to be small, but in actuality its radius is over 1,000 miles (1,600 km) across.

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Margaret Thatcher was the first female Prime Minister of the United Kingdom.
Margaret Thatcher was the best Prime Minister of the United Kingdom.
The love of money is the root of human-perpetuated evils in this world.
Welfare programs actually create more poverty and should be abolished altogether.
Abortion is immoral.
There is an all-powerful, knowledgeable, and good God who cares deeply for humanity.

Claims are either true or false – either *it is* the case or *it is not* the case that John is an honest, hard-working person, or that the State of Palestine should be granted full membership in the UN, or that when people die, their souls go to a heavenly place, and so on. Unless you're deranged or unaware for some reason, everyone agrees that the following claims are true:

(A) Some spiders are orange in color.
(B) Most children are born with two hands.
(C) Margaret Thatcher was the first female Prime Minister of the United Kingdom.
(D) There are craters on the moon.

On the other hand, everyone agrees that the following claims are false:

(A) The sun is a cube-shaped star.
(B) The cells in an animal's body have little versions of that particular animal inside them.
(C) Bill Gates wrote *War and Peace*.
(D) A person can stand and sit at the same time, in the same respect.

Evidence

A claim is shown to be true or false with *evidence*, which is a fact or concept (or set of facts or concepts) that provides support (affirmation, confirmation, corroboration, proof, substantiation, verification) for the truth or falsity of a claim. The most common way that evidence is utilized is in a court of law where the prosecution has to provide proof for the truth of

the claim, "The defendant is guilty of the crime" for example. However, you have probably heard someone make a claim and someone else ask, "What's the evidence for that claim?" or "Where's the proof for that claim?" Evidence comes in a number of forms:

Direct sense evidence of spatiotemporal entities using sight, sound, touch, taste, or smell.

For example, you go to Paris and see the Eiffel Tower for yourself, and this gives support for the truth of the claim, "The Eiffel Tower exists in Paris, France."

Sense evidence of spatiotemporal entities that is indirect through a device, machine, or instrument that is reliably calibrated, such as a magnifying glass, periscope, camera, video recorder, binoculars, microscope, telescope, or meter.

For example, you've never been to France, and you see pictures and videos of the Eiffel Tower, and this gives support for the truth of the claim, "The Eiffel Tower exists in Paris, France."

The testimony of others whom we trust.

For example, you've never been to France, but your parents go to France and tell you that they saw the Eiffel Tower, and you believe them. Once again, this gives support for the truth of the claim, "The Eiffel Tower exists in Paris, France."

The testimony of experts in some area, domain, field, or discipline.

For example, the engineer of the Eiffel Tower, Gustave Eiffel, tells other engineers that the tower can support an elevator system to bring people to the top, and the elevator engineers begin construction on the elevator because they take Gustave's testimony to be the support for the truth of the claim, "The Eiffel Tower can support an elevator system."

Authoritative explanations as one finds in the sciences.

For example, researchers since Isaac Newton have shown that gravity is at work in the universe, and this is what accounts for why the Eiffel Tower (and any other dense physical object) does not simply float away into Earth's atmosphere.

Logical or mathematical entailment.

For example, if it's true that the Eiffel Tower is located in Paris, and it's true that Paris is located in France, then by a logical property of the "located in" relationship known as *transitivity*, these two truths *entail* that (or we can conclude with absolute certainty that) it's true that the Eiffel Tower is located in France.

Arguments can act as evidence, too.

For example, the *reductio ad absurdum* (reduction to absurdity) argument has been used for thousands of years to show that someone's claim is false. One form of the argument looks like this:

(1) If your claim X is true, then this absurdity, contradiction, or craziness Y results.
(2) But, we cannot accept this absurdity, contradiction, or craziness Y.
(3) Therefore, your claim X is not true (it's false).

We can put flesh on the argument using this example:

(1) If it's true that Noah fit two of every species of living thing on the ark, then the ark would need to have been the size of Australia, which is absurd (and not communicated in the Bible anyway; it was about 520 feet long by 86 feet wide by 52 feet high).
(2) We cannot accept that Noah built an ark the size of Australia.
(3) Therefore, it's false that Noah fit two of every species of living thing on the ark.

There are other forms of evidence, but this should suffice for now. Referring back to our lettered list of true (A)–(D) and false (E)–(H) claims, we can note that:

(A) is true because of direct sense evidence – we can see that spiders are orange.
(B) is true because of expert testimony – the data gathered from doctors and researchers show that most children are born with two hands.
(C) is true in terms of expert testimony through historical records and accounts.
(D) is true because of direct sense evidence (we can see the craters with the naked eye) as well as sense evidence that is indirect through a telescope (ever since Galileo did it in the early 1600s).
(E) is false because of direct sense evidence – we can see that the sun is not cube-shaped. (E) is also false because of the well-established law of gravity, part of which means that celestial bodies such as stars are uniformly "pulled" in toward their center of mass as they rotate, creating a sphere-shaped (and not a cube-shaped) object.
(F) is false because of sense evidence that is indirect through a microscope – there are only organelles (nucleus, ribosomes, mitochondria, etc.) inside an animal cell.
(G) is false in terms of expert testimony through historical records and accounts – Leo Tolstoy wrote *War and Peace*.

(H) is false because of many well-established laws of physics as well as laws of math and logic. Through the principle of non-contradiction in logic, it can't be true that "Frank is standing" and "Frank is not standing (assumed when he's sitting)" at the same time and in the same respect.

As critically thinking, rational beings, we want to make sure that any claim we put forward – or anyone puts forward – is in fact true by virtue of the evidence for it. You will often hear questions like, "Where's the proof for what you're saying?" or "Give me an example of what you're talking about?" and these are other ways of saying, "What is the evidence that supports the truth of your claim?"

Certain claims are easier to support with evidence than others. In general, we think that direct sense evidence resulting from sober, sane people provides a decent support for claims made about the spatiotemporal world. If several folks are on a street corner when a car chase zooms by them and they all claim, "The vehicle being chased by police was a red SUV," then the officer interviewing them thinks, "Well, it must be true that it's a red SUV because the witnesses saw it." (Of course, it's possible to misperceive something or project something into existence that's not really there – even groups of folks are known to have done this – so one must be careful when taking another's "word" for something.)

So too, data are gathered from researchers about entities and relationships that are the focus of sciences such as physics, chemistry, and biology, and those researchers make claims about the data which most everyone takes to be true. When a respected astrophysicist says, "The sun is roughly 75% hydrogen and 25% helium," or a world-renowned chemist says, "There are currently 118 different elements that comprise the Periodic Table," or an Oxford University biologist says, "In African nations, malaria is transmitted to humans by the female mosquitoes of the genus *Anopheles*," we have no problem believing what they say is true.

Conversely, certain claims are much harder to support with evidence. "Humans have souls that survive the death of the body," "All events in the universe are determined to occur the way they do, including events caused by humans," "There are several alternate universes," and other like philosophical and theoretical claims require forms of evidence that go well beyond merely pointing at something in the spatiotemporal world. And some claims, like "I truly exist because I am aware of myself existing," "I recall that I had eggs for breakfast this morning," and "This object in my visual field appears green to me," may have evidence that is only acceptable to *that* person – the person who is aware, or recalling, or perceiving – and no one else.

Inferences and Arguments

There are plenty of times when we reason in an attempt to draw a conclusion from another claim or claims that we think or know to be true. For example, let's say that you have a convertible that is parked out front in your driveway, you left the top down, and you hear from the local meteorologist on TV that there's a 100% chance of rain in the next hour. You think to yourself, "If it rains outside, then the interior of my convertible gets wet." This is a little piece of reasoning, actually, where you are assuming that the claim, "The interior of my convertible gets wet" follows logically from the claim, "It rains outside." *Follows logically from* means the same thing as *can be legitimately inferred from* – one can legitimately infer that "The interior of my convertible gets wet" from "It rains outside." So, if we know it's true that "If it rains outside, then the interior of my convertible gets wet" and we know it's true that "It rains," then we can logically infer (or it follows logically that) "The interior of my convertible gets wet."

Here are some other examples:

We know it's true that:	*And we know it's true that:*	*So, we can conclude/infer that:*
Catholics are Christians.	Christians are believers in One God.	Catholics are believers in One God.
Most Republicans are conservative.	Jim is a Republican.	It's likely (though, not necessarily) that Jim is conservative.
Cats are a different species altogether from dogs.	Mittens is the name of my friend's cat.	Mittens is not a dog.
Fire requires a certain amount of oxygen to burn.	There's no oxygen in a perfect vacuum chamber.	Fire won't burn in a perfect vacuum chamber.
If all of the conditions are present for rain, then it rains.	All of the conditions are, in fact, present for rain.	It rains.

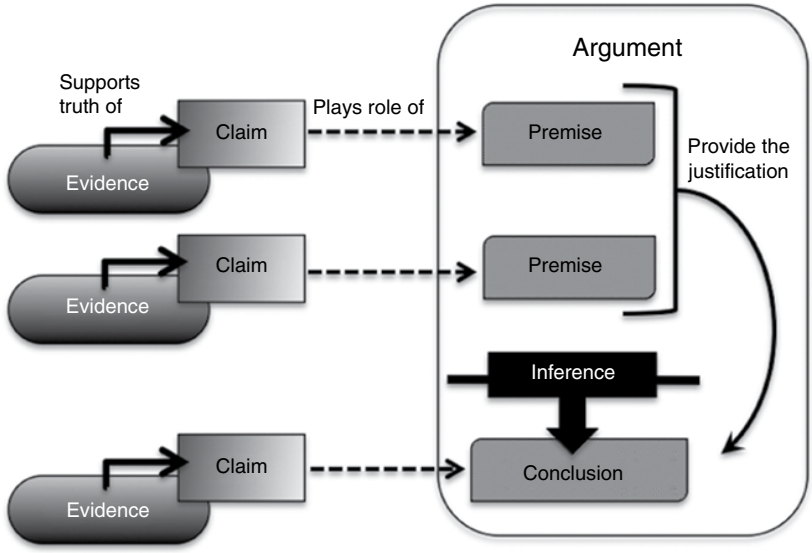
The car starts only if the battery works.	The battery does not work.	The car does not start.
Team X won the championship game the last two years.	Team X has had the best statistics of all of the teams this season.	Team X probably (not necessarily) will win the championship game today.
The sign says Chicago is 10 miles away from here.	Qualified highway personnel placed the sign where it is located.	Chicago is (most likely) 10 miles away from here.
If you want to go downtown, then you must take your car.	If you must take your car, then you'll need some gas for your car.	If you want to go downtown, then you'll need some gas for your car.

When we try to show what claim follows from or can be inferred from another claim or claims we take to be true, we are putting forward an *argument*. An argument is made up of at least two claims, one of which plays the role of the *conclusion*, while the other plays the role of a *premise*. A *premise* is the claim that is supposed to support, back up, justify, or give a reason for accepting the conclusion, while a *conclusion* is the claim that is supported by, backed up by, justified by, or shown to be what follows from the premise. The following is a simple argument with one premise and a conclusion:

Premise: Given that Frank is a bachelor.
Conclusion: This shows us that Frank is an unmarried male.

We can see that the claim "Frank is an unmarried male" follows from the claim "Frank is a bachelor" because what it means to be a bachelor is to be an unmarried male. That Frank is a bachelor (stated as a premise) supports, backs up, justifies, or gives the reason for accepting that Frank is an unmarried male (stated as the conclusion). Here is another simple argument with one premise and a conclusion that is straightforwardly obvious:

Premise: Jane has two apples and two oranges in her shopping cart.
Conclusion: Thus, Jane has four fruits in her shopping cart.



Usually an argument has more than one premise, as in the examples in the table above, a few of which we can put in argument form below. Note that an argument in *argument form* usually has the premises of the argument listed first, then a horizontal line – demarking premise(s) from conclusion – followed by the conclusion of the argument. Also, often (though, not always) there will be a *premise-indicating word* such as *because*, *since*, *given that*, *as*, *for*, or *for the reason(s) that* (there are others) that indicates a premise in an argument, while often (though, not always) there will be a *conclusion-indicating word* such as *So*, *Hence*, *Thus*, *Therefore*, *This shows us that*, or *We can then conclude/infer that* (there are others) that indicates a conclusion in an argument. A few of these indicating words are evident in the examples given above and below.

(1) Since Catholics are Christians.
(2) <u>And Christians are believers in One God.</u>
(3) Therefore, Catholics are believers in One God.

(1) Because most Republicans are conservative.
(2) <u>And because Jim is a Republican.</u>
(3) Hence, it's likely (though, not necessarily) that Jim is conservative.

(1) The car starts only if the battery works.
(2) <u>The battery does not work.</u>
(3) This shows us that the car does not start.

(1) Given that Team X won the championship game the last two years.
(2) And given that Team X has had the best statistics of all of the teams this season.
(3) So, Team X probably (not necessarily) will win the championship game today.

Persuasion is the Primary Reason for an Argument

When someone puts forward an argument in written or spoken form, she is trying to convince you or persuade you of the truth of the conclusion of the argument – in fact, this is *the* ultimate goal of, or primary reason for, an argument. This is most clearly the case in the Team X example above: let's say that Peter and a bunch of other folks are sitting in the bleachers just before the championship game is about to begin, and Peter makes the claim, "Team X probably will win the championship game today" – he obviously wants any and all persons (himself included) to believe that this claim is in fact true. However, Paul is sitting next to Peter, he's an intensely inquisitive kind of person, and he wants to know why Peter believes this and why anyone should believe this, so he says to Peter, "Oh yeah, prove it. Demonstrate it. Show me why I should accept that claim as true. I'm not convinced. I'm not persuaded. I want you to convince me, to persuade me, that the claim is true." Basically, Paul is asking for Peter's argument that concludes to the claim, "Team X probably will win the championship game today." So, Peter lays out his reasons for why anyone should accept his conclusion as being true, and those reasons take the form of premises in an argument. "Well," Peter continues, "Team X won the championship game the last two years. And Team X has had the best statistics of all of the teams this season. And those are the reasons that support my conclusion. Another way to say it is this: *that* Team X will win the championship game today follows from, or can be inferred from, the fact that Team X won the championship game the last two years and Team X has had the best statistics of all of the teams this season." Paul then may say, "Well, if it's true that Team X won the championship game the last two years and it's true that Team X has had the best statistics of all the teams this season, then I, too, am convinced that Team X probably will win today."

Oftentimes, a definition, an account, or an explanation looks like an argument. Consider this argument again:

(1) Since Catholics are Christians.
(2) And Christians are believers in One God.
(3) Therefore, Catholics are believers in One God.

It only becomes an argument if someone needs to be *convinced* or *persuaded* that "Catholics are believers in One God." However, when one does some investigation, one sees that, by definition, Catholics are Christians and again, by definition, Christians are believers in One God, so one really need not be convinced that "Catholics are believers in One God." It's not really something about which one need debate or argue.

Also, this argument really has the flavor of an explanation:

(1) The car starts only if the battery works.
(2) The battery does not work.
(3) Thus, the car does not start.

We could easily see someone's asking an auto mechanic, "Hey, why doesn't my car start?" and the auto mechanic's responding, "Well, the battery doesn't work, and the car won't start if the battery isn't working. So, there's the explanation for your problem. If he's a competent, experienced, trusted auto mechanic, then "The battery doesn't work" is what explains the car's not starting, and the claim is not really something about which one need debate or argue.

And this next example from the table above also has the flavor of an explanation or an account – we can imagine someone waking up from a long nap in the car on a road trip and asking, "How much further to Chicago?"

(1) The sign says Chicago is 10 miles away from here.
(2) Qualified highway personnel placed the sign where it is located.
(3) Chicago is (most likely) 10 miles away from here.

Notice that if someone claimed, "Margaret Thatcher was the first female Prime Minister of the United Kingdom," this would be easy to show as true or false by virtue of historical evidence. However, if someone claimed, "Margaret Thatcher was the *best* Prime Minister of the United Kingdom," then we can see that it "cries out" for a justification in terms of an argument. The person making this claim would need to *convince* others that Thatcher was the best PM of the UK by providing an argument complete with evidence for the truth of any premises.

Usually any *prescriptive claim* – a claim communicating that one should, ought to, or must do something – requires an argument. For example, the typical person will kill a spider he sees in his home, usually with a shudder and an "Ewww" right after. If someone said, "Hey, you shouldn't kill the spiders you see in your home," the argument might look like the following:

(1) Spiders set up webs near cracks and crevices of your home and eat insects that would become nuisances if they got inside your home, like ants and mosquitoes.