

Introduction to Logic and Critical Thinking

Fallacies of Misdirection

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Deductive Argument: In a deductive argument, the truth of the premises is supposed to guarantee the truth of the conclusion.

Inductive Argument: In an inductive argument, the truth of the premises is supposed to make it improbable that the conclusion is false. The premises provide us with very good reason for believing the conclusion.

What is a fallacy? Why should we care?

In general, a fallacy is another way of saying that an argument has gone wrong (and is invalid).

I think it is helpful to think of fallacies as occurring in a conversational context, such as a debate.

We need a quick method to diagnose how an argument has gone wrong, so that the conversation can continue.

Formal Fallacy: A formal fallacy is an argument that appears to be valid, but is not. This is due to an incorrect relationship between the premises and conclusion, or a problem with the form of the argument. (Note: The term 'fallacy' always applies to arguments and never to statements.)

Informal Fallacy: An informal fallacy is an argument that appears to be cogent, but is not. This is due to some problem (there are many possibilities here) with the content of the statements in the argument.

Example of a formal fallacy:
Premise 1: All cats are animals.
Premise 2: All dogs are animals.
Conclusion: All cats are dogs.

Example of a formal fallacy (denying the antecedent):
Premise 1: If Abraham Lincoln committed suicide, then Abraham Lincoln is dead.
Premise 2: Abraham Lincoln did not commit suicide.
Conclusion: Abraham Lincoln is not dead.

Example of an informal fallacy:
The Brooklyn Bridge is made of atoms.
Atoms are invisible.
Therefore, the Brooklyn Bridge is invisible.

Note:

We detect formal fallacies by looking at the structure of the premises and the relationships between premises and conclusion.

We detect informal fallacies by looking at the content of the premises.

Formal or Informal Fallacy?

1. If Rasputin was really mad, then he deceived Czar Nicholas II. Rasputin was not really mad. Therefore, he did not deceive Czar Nicholas II.
2. Everything that runs has feet. The Columbia River runs very swiftly. Therefore, the Columbia River has feet.
3. All people who believe we create our own reality are people who lack social responsibility. All people governed by selfish motives are people who lack social responsibility. Therefore, all people who believe we create our own reality are people governed by selfish motives.
4. The ship of state is like a ship at sea. No sailor is ever allowed to protest orders from the captain. For the same reason, no citizen should ever be allowed to protest presidential policies.
5. Renowned violinist Pinchas Zukerman has said, "When it comes to vodka, Smirnoff plays second fiddle to none." We must therefore conclude that Smirnoff is the best vodka available.
6. If the Chinese government systematically kills its unwanted orphans, then the Chinese government is immoral. The Chinese government is indeed immoral. Therefore, the Chinese government systematically kills its unwanted orphans.

Ad Hominem Fallacies

**In Latin, Ad Hominem means,
“to the Man”**

- All of the fallacies in this section fall into a category I call “Fallacies of misdirection”

General Ad Hominem: This occurs whenever there is a shift from the person's argument to the person, and/or showing some sort of inconsistency between features of a speaker and features of the speaker's argument.

Note: We need to be careful not to confuse what *might* be relevant features of a person's background with what *might* be irrelevant features.

Also note: We can provide a good argument against someone's position, and attack the person's character -- there is no fallacy if the attack on the person's character is not supposed to be the reason to believe that their argument is bad.

Detecting Insults vs. Ad Hominems

"Lance Armstrong is a cheater" is an insult.

"Lance Armstrong is a cheater, therefore you shouldn't believe anything he says" is an *ad hominem*.

Lance Armstrong may in fact be a cheater but, in fact, say many true and justified things.

**Some varieties of ad
hominems...**

Abusive Ad Hominem: an abusive ad hominem involves a direct attack on an individual's character. Abusing someone's character is fallacious if the abuse itself is supposed to be a reason not to believe their argument.

Example:

Poet Allen Ginsberg has argued in favor of abolishing censorship of pornographic literature. But Ginsberg's arguments are nothing but trash. Ginsberg, you know, is a marijuana-smoking homosexual and a thoroughgoing advocate of the drug culture.

Circumstantial Ad Hominem: A circumstantial ad hominem attacks a person's circumstances and uses that attack to undermine their argument.

Example:

Bill Gates has argued at length that Microsoft Corporation does not have a monopoly on computer disc operating systems. But Gates is chief executive officer of Microsoft, and he wants to avoid antitrust action against his company. Therefore, we should ignore Gates's arguments.

Tu Quoque: A tu quoque suggests that there is an inconsistency between what a person does (or did) and says (or said).

Example:

Child to parent: Your argument that I should stop stealing candy from the corner store is no good. You told me yourself just a week ago that you, too, stole candy when you were a kid.

TU QUOQUE:

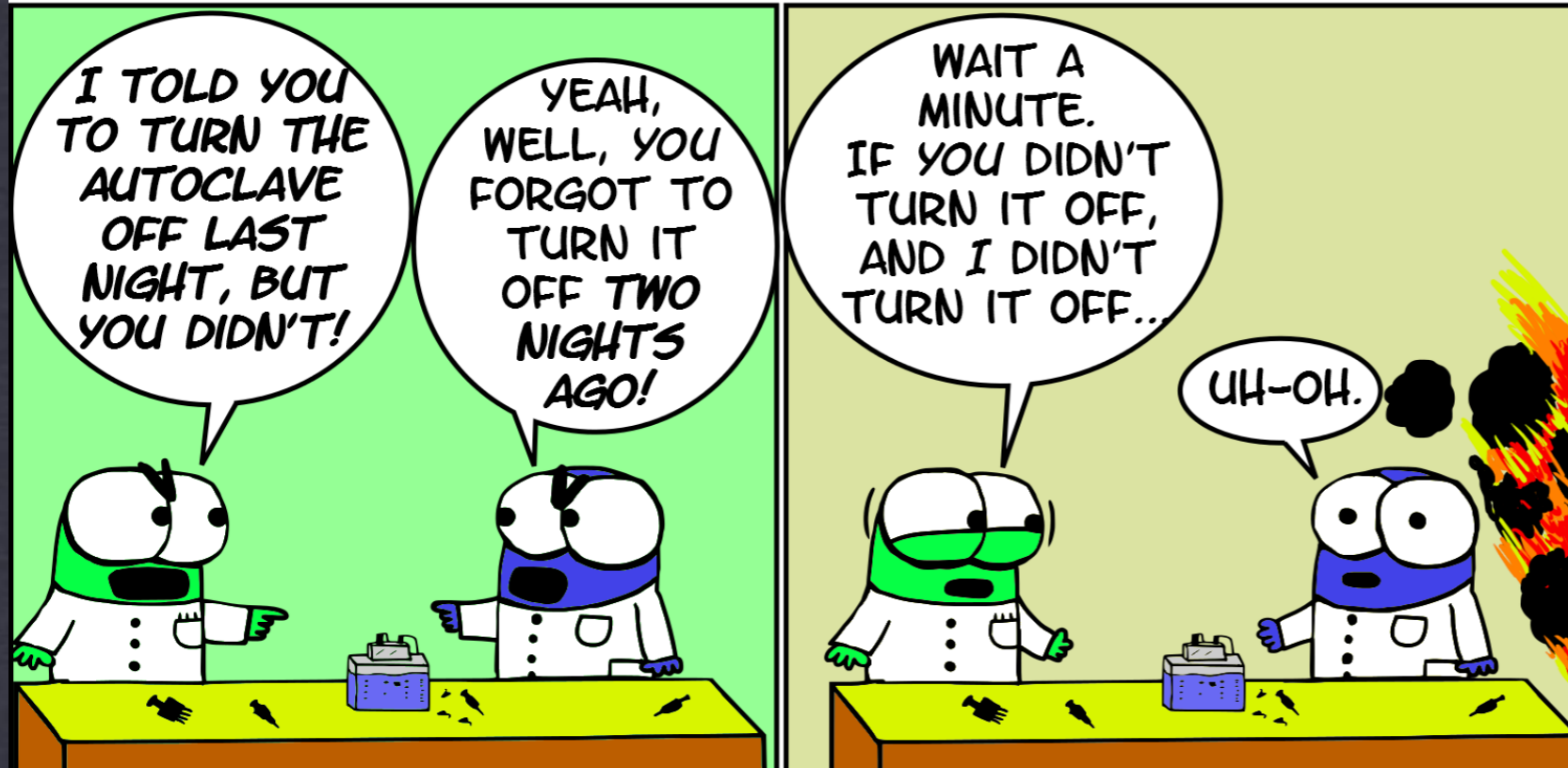
THE UPTURNED MICROSCOPE PRESENTS Logical Fallacies in the Lab

TODAY:

TU QUOQUE

RESPONDING TO CRITICISM BY ACCUSING
THE OTHER PERSON OF THE SAME ERROR

FROM THE LATIN:
“YOU, TOO.”



Guilt by Association: This kind of fallacy is similar to circumstantial ad hominem but rather than saying it is a person's circumstances that undermine his argument, the speaker says it is the position/action of someone associated with the speaker.

Example:

In the past decade my work devoted to the investigation of the disappearance, torture, and extrajudicial execution of human rights victims in many countries has often made me the target of public criticism and official outrage. To date, however, none of my critics has called me a racist. Among my detractors have been apologists for the brutal military regime in Argentina, representatives of General Pinochet's military in Chile, the Guatemalan Defense Minister, and Serbian government spokesmen. Thus Mr. Goodman [Snow's accuser] finds himself in interesting company.

--Scientist Clyde Collins Snow responding to the charge of being a racist.

Abusive ad hominem, circumstantial ad hominem, tu quoque, guilt by association, or no fallacy?

“The swing voters -- I like to refer to them as the idiot voters because they don't have set philosophical principles. You're either a liberal or you're a conservative if you have an IQ above a toaster.” --Ann Coulter, “Beyond the News,” *Fox News*, June 4, 2000.

AD HOMINEM ABUSIVE

“Bill Clinton has ceased promising that the missus will play a key role in his White House. The reason is clear from [a recent] profile of Hillary in *American Spectator*. Since her Yale days, Hillary has been enthusiastically engaged with the radical Left.

While she headed the New World Foundation, it gave grants to such leftist organizations as the fello-traveling National Lawyers Guild and CISPES (the Committee in Support of the People of El Salvador).” --Editorial, *National Review*, August 1992.

GUILT BY ASSOCIATION?

Abusive ad hominem, circumstantial ad hominem, tu quoque, guilt by association, or no fallacy?

Shakespeare cannot possibly have written the thirty-six plays attributed to him, because the real Shakespeare was a two-bit country businessman who barely finished the fourth grade in school and who never left the confines of his native England.

NO FALLACY?

The classic trap for any revolutionary is always “What’s your alternative?” But even if you *could* provide the interrogator with a blueprint, this does not mean he would use it; in most cases he is not sincere in wanting to know. --Shulamith Firestone, *The Dialectic of Sex: The Case for Feminist Revolution*

AD HOMINEM ABUSIVE

Abusive ad hominem, circumstantial ad hominem, tu quoque, guilt by association, or no fallacy?

Mickey has testified that he saw Freddy set fire to the building. But Mickey was recently convicted on ten counts of perjury, and he hates Freddy with a passion and would love to see him sent off to jail. Therefore, you should not believe Mickey's testimony.

NO FALLACY

Chairman of General Electric, Jack Welch, was challenged at a stockholder's meeting recently by a nun who argued that GE was responsible for the cleanup of the Hudson River where pollutants from GE's plants had for many years been allowed to collect. Welch flatly denied the company's responsibility, saying, "Sister, you have to stop this conversation. You owe it to God to be on the side of truth here." --Elizabeth Kolbert, "The River," *The New Yorker*, Dec 4, 2000.

AD HOMINEM CIRCUMSTANTIAL

Straw Man Fallacy: the attribution or assumption of a position, which is then attacked or dismissed. A position is explicitly attributed to an opponent, and either the opponent does not hold that position or not in the way attributed.

A speaker is not responding to her opponent if she mischaracterizes her opponent's position. This does not need to be intentional for it to be a fallacy.



EXAMPLES OF STRAW MAN FALLACIES

Mr. Smith has argued against prayer in the public schools. Obviously Mr. Smith advocates atheism. But atheism is what they used to have in Russia. Atheism leads to the suppression of all religions and the replacement of God by an omnipotent state. Is that what we want for this country? I hardly think so. Clearly Mr. Smith's argument is nonsense.

WARNING: FALLACIES WILL ALMOST NEVER BE THIS EASY TO DETECT.

The garment workers have signed a petition arguing for better ventilation on the work premises. Unfortunately, air conditioning is expensive. Air ducts would have to be run throughout the factory, and a massive heat exchange unit installed on the roof. Also, the cost of operating such a system during the summer would be astronomical. In view of these considerations the petition must be rejected.

THE PROBLEM WITH THIS ARGUMENT IS NOT ITS INHUMANITY.

The student status committee has presented us with an argument favoring alcohol privileges on campus. What do the students want? Is it their intention to stay boozed up from the day they enter as freshmen until the day they graduate? Do they expect us to open a bar for them? Or maybe a chain of bars all over campus? Such a proposal is ridiculous!

WARNING: STRAW MAN FALLACIES CAN'T BE DETECTED UNTIL WE ARE FAMILIAR WITH THE ORIGINAL POSITION.

EXAMPLES OF STRAW MAN FALLACIES

Senator Barrow advocates increased Social Security benefits for the poor. It is regrettable that the senator finds it necessary to advocate liberalism. Liberalism defeats initiative, takes away promised rewards, and leads directly to inefficiency and big government. It has been tried for years in Europe, and it has failed miserably. Clearly, liberalism is no good.

WARNING: THE SUBTLETY OF STRAW MAN FALLACIES USUALLY COMES FROM THE INTRODUCTION OF IRRELEVANT CLAIMS, NOT ONES THAT ARE TOTALLY OFF THE MARK.

Red Herring: diverting attention to a new issue so that the audience will completely lose the scent of the original issue.

This does not involve misrepresentation but rather the introduction of a new issue altogether.



EXAMPLES OF RED HERRING FALLACIES

Your friend Margie says that Tasters Choice coffee tastes better than Folgers. Apparently she is ignoring the fact that Tasters Choice is made by Nestle, and Nestle is the company that manufactured that terrible baby formula for Third World countries. Thousands of babies died when the dry milk formula was mixed with contaminated water. Obviously your friend is mistaken.

RED HERRINGS WILL ONLY SOMETIMES BE THIS OBVIOUS.

There is a good deal of talk these days about the need to eliminate pesticides from our fruit and vegetables. But many of these foods are essential to our health. Carrots are an excellent source of vitamin A, broccoli is rich in iron, and oranges and grapefruits have lots of vitamin C.

Environmentalists are continually harping about the dangers of nuclear power. Unfortunately, electricity is dangerous no matter where it comes from. Every year hundreds of people are electrocuted by accident. Since most of these accidents are caused by carelessness, they could be avoided if people would just exercise greater caution.

January 21, 2003 Debate in the British Parliament:

Mr. Tam Dalyell: Which Iraqi opposition groups favour the intense bombing likely to be conducted by the Americans to minimize the number of body bags that will be taken back to Alabama or Wyoming?

Mr. O'Brien: The Iraqi opposition groups want the removal of Saddam Hussein. If there were a choice between a peaceful and democratic regime in Iraq under Saddam Hussein and a war, the issue might be different, but the fact is that Saddam Hussein has carried out the wholesale slaughter of large numbers of his people. I urge my hon. Friend to remember the 5,000 men, women, and children who died at Halabja in 1998 and the 9,000 who were injured there. We need to make sure that Saddam Hussein is recognised as the tyrant that he is, and is dealt with accordingly.

(Tindale, pp. 29-30)

SUBTLE RED HERRING COMPLICATED BY A COMPLEX QUESTION

1. Erica Evans, who takes orders at the local Taco Bell, argues persuasively in favor of increasing the minimum wage. But this is exactly what you would expect. Erica is paid the minimum wage, and if the minimum wage is increased, then her own salary will go up. Obviously Erica's arguments are worthless.
2. The school board argues that our schools are in desperate need of repair. But the real reason our students are falling behind is that they spend too much time with their computers. Becoming educated means a lot more than learning how to point and click. The school board should send a letter to the parents urging them to monitor their kids' computer time.
3. Friedrich Nietzsche's philosophy is not worth the paper it's printed on. Nietzsche was an immoral reprobate who went completely insane from syphilis before he died.
4. The editors of the Daily Register have accused our company of being one of the city's worst water polluters. But the Daily Register is responsible for much more pollution than we are. After all, they own the Western Paper Company, and that company discharges tons of chemical residue into the city's river every day.
5. Rudolf Hoss, commandant of the Auschwitz concentration camp, confessed to having exterminated one million people, most of whom were Jews, in the Auschwitz gas chamber. We can only conclude that Hoss was either insane or an extremely evil person.
6. Animal rights activists say that animals are abused in biomedical research labs. But consider this: Pets are abused by their owners every day. Probably 25 percent of pet owners should never get near animals. Some cases of abuse are enough to make you sick.

Bonus Materials
follow...

Appeal to Unqualified Authority

This fallacy involves the appeal to an unqualified authority when substituted for a reason.

Someone (or some source) asserts a statement S.
Therefore, S is true.

Everything X says is true.
X says that P.
Therefore, P is true.

Appeal to Unqualified Authority

Why do we need to appeal to authorities?

- The range of what we talk about is more complicated than we could possibly have direct acquaintance with.
- Because of this, it makes sense for us to defer to others when necessary.
- Argument *from* authority vs. Argument of authority

Why do we need to count on testimony?

- We know about the world from our perception, memory, inference, and what others tell us.
- When we say that something is true about the world, we are often counting on whether *people in general* experience it, and not *us in particular*.
- We assume testimony that is based on wide experience is more reliable.

Appeal to Unqualified Authority

How do we know when this is a fallacy?

1. Is the proposed person or source a genuine authority?

●How do we know when someone is a genuine authority? What are the standards? How and when do our standards change?

2. Did the authority make the attributed claim?

3. Are the authority and claim relevant to the subject matter?

Appeal to Unqualified Authority

The Identity Question:

The authority or expert (whether a person, institution, or source) must be identified and should have a track record that increases the reliability of the statements over related statements from sources that do not possess the expertise. Appeals to unidentified experts with unknown or weak track records can be judged fallacious.

Example: Recent scientific studies have linked the sweetener Aspartame to cancers in laboratory animals. Given the prevalence of Aspartame in diet drinks, it should be removed from the market.

The problem of hear-say.

Appeal to Unqualified Authority

The Field Question:

The authority should be in a field that lends itself to expert knowledge. That is, it should constitute a body of knowledge over which it would be appropriate for someone to have expertise. Failure to meet this condition will result in a fallacious appeal.

Example: It is remarkable that people would still doubt that the Earth has been visited by extraterrestrials in the distant past. Erich von Daniken, the world's most successful non-fiction writer of all time, has written 26 books on the topic and has sold over 63 million copies worldwide.

But what about other fields such as human cloning or clinical ecology?

Appeal to Unqualified Authority

The Relevance Question:

The expert's statements must be both related to the field of expertise and relevant to the question at hand.

Example: Dr. Spock said that “no human, no child, no adult needs cow’s milk -- it’s a deception on the government’s part to promote.” So, don’t listen to me. Take the advice of Dr. Spock, arguably the most influential pediatrician of all time.

Appeal to Unqualified Authority

The Testability Question:

Direct knowledge could be acquired by the person making the appeal, at least in principle. That is, there must be some way of testing or verifying the expert's claims.

Example: Out of Body Experiences (OBEs) have been given a considerable boost since the experiment reported in 1980 by Osis and McCormick. The subject of the experiment was a psychic, Alex Tanous, who induced OBEs during which he identified remote targets that could normally only be viewed from a very specific location.

Appeal to Unqualified Authority

The Bias Question:

The expert should not have a vested interest in the claim so as to benefit the outcome. Where such illegitimate bias is clear or suggested, the appeal is weakened to the point of being fallacious.

Example: The claims that second-hand smoke represents a serious health risk to people are wildly overstated. Consider, for example, a recent study (in the May 17, 2003 issue of the British Medical Journal) conducted by a team of researchers from the UCLA School of Public Health. Lead investigator Dr. James Enstrom reported “We found no measurable effect from being exposed to secondhand smoke and an increased risk of heart disease or lung cancer in nonsmokers.”

Appeal to Unqualified Authority

The Consensus Question:

We would prefer that there be some consensus in the field -- or, where this does not exist, as with conflicting expert witnesses in a trial, that the claims are consistent with other knowledge claims within the relevant field.

Example: We should be very wary of rushing forward with the Kyoto agreement on climate change. The case for human-caused climate change and global warming is still to be made to a degree that would warrant us seriously changing our behavior. After all, the Wall Street Journal editors note (June 21, 2005) that “the scientific case...looks weaker all the time” and that “Since that vote eight years ago, the case for linking fossil fuels to global warming has, if anything, become ever more doubtful.”

But how could we make this argument non-fallacious? How do we argue about controversial matters?

Appeals to Unqualified Authority? Why?

1. There must be something to psychical research. Three famous physicists, Oliver Lodge, James Jeans, and Arthur Stanley Eddington, took it seriously.
2. Robert Oppenheimer was instrumental in developing the first nuclear bombs. Since he has long fought against the further use and proliferation of nuclear weapons in international warfare, we should also be against the use of nuclear weapons.
3. Professor Brastoff, the famous astrophysicist, has stated that the so-called Jupiter Effect, the alignment of the nine planets in the solar system, poses no danger for the inhabitants of Earth. Furthermore, no scientists disagree with Brastoff. We may conclude that the Jupiter Effect is indeed harmless.
4. “[Karl] Rove told the Denver Post that ‘recent studies’ show researchers ‘have far more promise from adult stem cells than from embryonic stem cells.’ The Chicago Tribune contacted top stem cell experts who said Rove’s claim was inaccurate and the White House ‘could not provide the name of a stem cell researcher who shares Rove’s views on the superior promise of adult stem cells.’ Today (July 23, 2006) on Meet the Press, Tim Russert gave White House Chief of Staff Josh Bolten an opportunity to repudiate Rove’s claims. Bolten refused, saying Rove ‘knows a lot of stuff.’”
5. According to 100 nobel laureates and other serious intellectuals, and now Nancy Reagan, stem cell research must be pursued.
6. James Dobson, director of Focus on the Family, says that men have the divine obligation to lead their families, and women have the divine obligation to submit to their husband’s authority. Given Dobson’s apparent ability to receive messages from God, we must conclude that this statement is absolutely true.

EXPERTS CALL FOR BETTER ASSESSMENT OF THREATS

BY WILLIAM J. BROAD
PUBLISHED: OCTOBER 2, 2001

Federal agencies and Congress are racing to check the security of everything from soybeans to municipal water supplies to nuclear reactors to whole cities. Last week, concern rose with the disclosure that the suspected jet hijackers had investigated crop-dusters -- and thus, conceivably, the possibility of spreading deadly germs or chemicals.

"Terrorism is a clear and present danger to Americans today," [Attorney General John Ashcroft](#) told the Senate Judiciary Committee a week ago. On Sunday, Mr. Ashcroft renewed the alert, saying American retaliatory strikes might cause the already sizable risk of terrorism to rise.

But some private and public experts, including Congressional investigators who examined secret federal data, say American intelligence officials, for example, have at times exaggerated the risk posed by terrorists armed with weapons of mass destruction, which by definition can maim or kill tens of thousands or even millions of people. They say there are daunting obstacles to making and deploying these germ, chemical or radiological weapons...

Federal officials reject such criticism. Though they say they have no knowledge of imminent threats from weapons of mass destruction, they say the danger is real and rising. And experts agree that the surprise attacks on some of the nation's most important buildings on Sept. 11 show the difficulty of anticipating all threats.

The dispute is throwing light on an obscure speciality of military theorists: threat assessment.

[More art than science, the discipline](#) relies on technical knowledge of what is possible and inferences about what resources terrorists have -- money, materials and expertise -- leavened with as many intelligence clues as possible as to their aims and goals. The field is rife with uncertainties, disagreements and, most basically, the challenge of disentangling vulnerability from real danger.

"You get the best and brightest and do your level best," [Representative Sherwood Boehlert](#), a New York Republican who is chairman of the House Science Committee, said in an interview. "It's anything but simple." ...

Some experts in and out of government say the assessments have often tended to be alarmist. The risk of a terrorist striking with weapons of mass destruction, they say, is lower than generally perceived and at times claimed in departmental appraisals.

It is extremely difficult, they insist, to acquire and use the complicated equipment needed to scatter deadly pathogens, chemicals or radioactivity in devastating ways. All too often, these critics say, assessments inaccurately miscast terrorists as technical sophisticates...

Dr. Brad Roberts, a terrorism expert at the Institute for Defense Analyses, a private group in Alexandria, Va., that advises the Pentagon, said **experts** were so shaken by the recent attacks that they now tended to see only worst-case scenarios...

Even so, **most experts agree** that the risks of serious attack are destined to rise slowly over the years and decades as science, technology and arms expertise spread around the globe, making accurate assessment of them all the more crucial.....

Germ weapons, pound for pound, are usually the most potent, in some cases surpassing chemical and nuclear arms in terms of killing power. But they, too, are difficult to use. After the end of the cold war, and particularly after the breakup of the Soviet Union, [many Western security experts](#) warned that the means of mass destruction could fall into terrorist hands....

For instance, [the Federal Bureau of Investigation](#) ignores smallpox as a major danger, possibly because the virus was eradicated from human populations decades ago and would be, theoretically at least, difficult to obtain. But the [Centers for Disease Control and Prevention](#) sees smallpox as a top threat. One reason: If unleashed, the virus can spread rapidly because of its extreme contagiousness....

With national jitters high after the Sept. 11 attacks, [many people are making informal judgments](#) about what attacks might come next. [Security experts](#), while often disagreeing over long-term trends and dangers, say most of these snap calls are overreactions....

Anxiety nonetheless abounds. "Sales are up," said [Dan Sythe, president of International Medcom](#), a company in Sebastopol, Calif., that makes radiation detectors. "People are concerned about nuclear terrorism."

[Experts agree](#) that the easiest nuclear weapon to acquire would be radiological, sometimes known as a "dirty nuke." These use conventional high explosives to scatter highly radioactive materials to poison targets rather than destroying them with blast and heat. Their effects on people range from radiation sickness to cancer....

People are also stocking up on bottled water, fearful that terrorists could poison reservoirs. But [germ warfare experts](#) dismiss such threats as verging on the impossible.

Probative Relevance: “In an argument, a relevant premise actively increases or decreases the audience’s reasons for holding a conclusion. That is, the premise has a **direct bearing** on the truth or acceptability of the conclusion. If a premise, even though deemed true or acceptable itself, makes no difference to the conclusion, we say that it is irrelevant to that conclusion”

Dialectical Relevance: “...an argument must be relevant to its context and background...”

(Tindale, p. 23)

The Straw Man Fallacy fails the test of Dialectical Relevance. An argument may pass the test of Probative Relevance (be internally relevant) but fail the test of Dialectical Relevance (be externally irrelevant).

More on Dialectical Relevance: “...an argument must be relevant to its context and background...”

How do we know when an argument is relevant to its context and background?

Audience (familiarity, authority, sympathy, etc.)

Conversational goals (testifying before Congress, talking to friends, ordering a hamburger)

Forum (in the classroom, on the street, in an op-ed article)

Prior occurrence (What have you and your audience been talking about? Have you been asked a direct question? Are you supposed to be talking about abstract topics or concrete topics? Are there some topics that have already been covered, or other relevant topics that have obviously been left out?)

What else?