

this claim in a larger body of physical theory that rules out as inconsistent any alternative causal explanation. To do that convincingly in regard to any given causal hypothesis, as this example suggests, requires detailed knowledge of the current state of the relevant body of scientific theory, something far beyond our aim or need to consider in further detail here.

FALLACIES

The straight road on which sound reasoning proceeds gives little latitude for cruising about. Irrationality, carelessness, passionate attachment to one's unexamined beliefs, and the sheer complexity of some issues occasionally spoil the reasoning of even the best of us. Although in this book we reprint many varied voices and arguments, we hope we have reprinted no readings that exhibit the most flagrant errors or commit the graver abuses against the canons of good reasoning. Nevertheless, an inventory of those abuses and their close examination can be an instructive (as well as an amusing) exercise—instructive because the diagnosis and repair of error helps to fix more clearly the principles of sound reasoning on which such remedial labors depend; amusing because we are so constituted that our perception of the nonsense of others can stimulate our mind, warm our heart, and give us comforting feelings of superiority.

The discussion that follows, then, is a quick tour through the twisting lanes, mudflats, forests, and quicksands of the faults that one sometimes encounters in reading arguments that stray from the highway of clear thinking.

Fallacies of Ambiguity

Ambiguity Near the center of the town of Concord, Massachusetts, is an empty field with a sign reading "Old Calf Pasture." Hmm. A pasture in former times in which calves grazed? A pasture now in use for old calves? An erstwhile pasture for old calves? These alternative readings arise because of **ambiguity**; brevity in the sign has produced a group of words that give rise to more than one possible interpretation, confusing the reader and (presumably) frustrating the sign writer's intentions.

Consider a more complex example. Suppose someone asserts *People have equal rights* and also *Everyone has a right to property*. Many people believe both these claims, but their combination involves

an ambiguity. According to one interpretation, the two claims entail that everyone has an *equal right* to property. (That is, you and I each have an equal right to whatever property we have.) But the two claims can also be interpreted to mean that everyone has a *right to equal property*. (That is, whatever property you have a right to, I have a right to the same, or at least equivalent, property.) The latter interpretation is revolutionary, whereas the former is not. Arguments over equal rights often involve this ambiguity.

Division In the Bible, we are told that the apostles of Jesus were twelve and that Matthew was an apostle. Does it follow that Matthew was twelve? No. To argue in this way from a property of a group to a property of a member of that group is to commit the **fallacy of division**. The example of the apostles may not be a very tempting instance of this error; here is a classic version that is a bit more interesting. If it is true that the average American family has 1.8 children, does it follow that your brother and sister-in-law are likely to have 1.8 children? If you think it does, you have committed the fallacy of division.

Composition Could an all-star team of professional basketball players beat the Boston Celtics in their heyday—say, the team of 1985 to 1986? Perhaps in one game or two, but probably not in seven out of a dozen games in a row. As students of the game know, teamwork is an indispensable part of outstanding performance, and the 1985 to 1986 Celtics were famous for their self-sacrificing style of play.

The **fallacy of composition** can be convincingly illustrated, therefore, in this argument: *A team of five NBA all-stars is the best team in basketball if each of the five players is the best at his position*. The fallacy is called composition because the reasoning commits the error of arguing from the true premise that each member of a group has a certain property to the not necessarily true conclusion that the group (the composition) itself has the property. (That is, because *A* is the best player at forward, *B* is the best center, and so on, therefore, the team of *A, B, . . .* is the best team.)

Equivocation In a delightful passage in Lewis Carroll's *Through the Looking-Glass*, the king asks his messenger, "Who did you pass on the road?" and the messenger replies, "Nobody." This prompts the king to observe, "Of course, Nobody walks slower than you," provoking the messenger's sullen response: "I do my best. I'm sure nobody

walks much faster than I do." At this the king remarks with surprise, "He can't do that or else he'd have been here first!" (This, by the way, is the classic predecessor of the famous comic dialogue "Who's on First?" between the comedians Bud Abbott and Lou Costello.) The king and the messenger are equivocating on the term *nobody*. The messenger uses it in the normal way as an indefinite pronoun equivalent to "not anyone." But the king uses the word as though it were a proper noun, *Nobody*, the rather odd name of some person. No wonder the king and the messenger talk right past each other.

Equivocation (from the Latin for "equal voice" — that is, giving utterance to two meanings at the same time in one word or phrase) can ruin otherwise good reasoning, as in this example: *Euthanasia is a good death; one dies a good death when one dies peacefully in old age; therefore, euthanasia is dying peacefully in old age.* The etymology of *euthanasia* is literally "a good death," and so the first premise is true. And the second premise is certainly plausible. But the conclusion of this syllogism is false. *Euthanasia* cannot be defined as a peaceful death in one's old age, for two reasons. First, *euthanasia* requires the intervention of another person who kills someone (or lets the person die); second, even a very young person can be euthanized. The problem arises because "a good death" is used in the second premise in a manner that does not apply to *euthanasia*. Both meanings of "a good death" are legitimate, but when used together, they constitute an equivocation that spoils the argument.

The fallacy of equivocation takes us from the discussion of confusions in individual claims or grounds to the more troublesome fallacies that infect the linkages between the claims we make and the grounds (or reasons) for them. These are the fallacies that occur in statements that, following the vocabulary of the Toulmin method, are called the *warrant* of reasoning. Each fallacy is an example of reasoning that involves a **non sequitur** (Latin for "It does not follow"). That is, the *claim* (the conclusion) does not follow from the *grounds* (the premises).

For a start, here is an obvious non sequitur: "He went to the movies on three consecutive nights, so he must love movies." Why doesn't the claim ("He must love movies") follow from the grounds ("He went to the movies on three consecutive nights")? Perhaps the person was just fulfilling an assignment in a film course (maybe he even hated movies so much that he had postponed three assignments to see films and now had to see them all in quick succession), or maybe he went with a girlfriend who was a movie buff, or maybe . . . —well, one can think of any number of other possible reasons.

Fallacies of Presumption

Distorting the Facts Facts can be distorted either intentionally (to deceive or mislead) or unintentionally, and in either case usually (but not invariably) to the benefit of whoever is doing the distortion. Consider this not entirely hypothetical case. A pharmaceutical company spends millions of dollars to develop a new drug that will help pregnant women avoid spontaneous abortion. The company reports its findings, but it does not also report that it has learned from its researchers of a serious downside for this drug in many cases, resulting in deformed limbs in the neonate. Had the company informed the public of this fact, the drug would not have been certified for use.

Here is another case. Half a century ago the surgeon general reported that smoking cigarettes increased the likelihood that smokers would eventually suffer from lung cancer. The cigarette manufacturers vigorously protested that the surgeon general relied on inconclusive research and was badly misleading the public about the health risks of smoking. It later turned out that the tobacco companies knew that smoking increased the risk of lung cancer—a fact established by the company's own laboratories but concealed from the public. Today, thanks to public access to all the facts, it is commonplace knowledge that inhaled smoke—including secondhand smoke—is a risk factor for many illnesses.

Post Hoc, Ergo Propter Hoc One of the most tempting errors in reasoning is to ground a claim about causation on an observed temporal sequence; that is, to argue "after this, therefore because of this" (which is what the phrase *post hoc, ergo propter hoc* means in Latin). In 1964, when the medical community first announced that smoking tobacco caused lung cancer, advocates for the tobacco industry replied that doctors were guilty of this fallacy.

These industry advocates argued that medical researchers had merely noticed that in some people, lung cancer developed *after* considerable smoking, indeed, years after; but (they insisted) this correlation was not at all the same as a causal relation between smoking and lung cancer. True enough. The claim that *A causes B* is not the same as the claim that *B* comes after *A*. After all, it was possible that smokers as a group had some other common trait and that this factor was the true cause of their cancer.

As the long controversy over the truth about the causation of lung cancer shows, to avoid the appearance of fallacious *post hoc* reasoning one needs to find some way to link the observed phenomena

(the correlation of smoking and the onset of lung cancer). This step requires some further theory and preferably some experimental evidence for the exact sequence or physical mechanism, in full detail, of how ingestion of tobacco smoke is a crucial factor—and is not merely an accidental or happenstance prior event—in the subsequent development of the cancer.

Many Questions The old saw, “When did you stop beating your wife?” illustrates the **fallacy of many questions**. This question, as one can readily see, is unanswerable unless all three of its implicit presuppositions are true. The questioner presupposes that (1) the addressee has or had a wife, (2) he has beaten her, and (3) he has stopped beating her. If any of these presuppositions is false, then the question is pointless; it cannot be answered strictly and simply with a date.

Hasty Generalization From a logical point of view, **hasty generalization** is the precipitous move from true assertions about *one* or a *few* instances to dubious or even false assertions about *all*. For example, while it may be true, based on your personal experience, that the only native Hungarians you personally know do not speak English very well, that is no basis for asserting that all Hungarians do not speak English very well. Or if the clothes you recently ordered online turn out not to fit very well, it doesn't follow that *all* online clothes turn out to be too large or too small. A hasty generalization usually lies behind a **stereotype**—that is, a person or event treated as typical of a whole class. Thus, in 1914, after the German invasion of Belgium, during which some atrocities were committed by the invaders, the German troops were quickly stereotyped by the Allies as brutal savages who skewered helpless babies on their bayonets.

The Slippery Slope One of the most familiar arguments against any type of government regulation is that if it is allowed, then it will be just the first step down the path that leads to ruinous interference, overregulation, and totalitarian control. Fairly often we encounter this mode of argument in the public debates over handgun control, the censorship of pornography, and physician-assisted suicide. The argument is called the **slippery slope argument** (or the **wedge argument**, from the way we use the thin end of a wedge to split solid things apart; it is also called, rather colorfully, “letting the camel's nose under the tent”). The fallacy here is in implying that

the first step necessarily leads to the second, and so on down the slope to disaster, when in fact there is no necessary slide from the first step to the second. (Would handgun registration lead to a police state? Well, it hasn't in Switzerland.) Sometimes the argument takes the form of claiming that a seemingly innocent or even attractive principle that is being applied in a given case (censorship of pornography, to avoid promoting sexual violence) requires one for the sake of consistency to apply the same principle in other cases, only with absurd and catastrophic results (censorship of everything in print, to avoid hurting anyone's feelings).

Here's an extreme example of this fallacy in action:

Automobiles cause more deaths than handguns do. If you oppose handguns on the ground that doing so would save lives of the innocent, you'll soon find yourself wanting to outlaw the automobile.

Does opposition to handguns have this consequence? Not necessarily. Most people accept without dispute the right of society to regulate the operation of motor vehicles by requiring drivers to have a license, a greater restriction than many states impose on gun ownership. Besides, a gun is a lethal weapon designed to kill, whereas an automobile or truck is a vehicle designed for transportation. Private ownership and use in both cases entail risks of death to the innocent. But there is no inconsistency in a society's refusal to tolerate this risk in the case of guns and its willingness to do so in the case of automobiles.

Closely related to the slippery slope is what lawyers call a **parade of horrors**, an array of examples of terrible consequences that will or might follow if we travel down a certain path. A good example appears in Justice William Brennan's opinion for the Supreme Court in *Texas v. Johnson* (1989), concerned with a Texas law against burning the American flag in political protest. If this law is allowed to stand, Brennan suggests, we may next find laws against burning the presidential seal, state flags, and the Constitution.

False Analogy Argument by analogy, as we point out in Chapter 3 and as many of the selections in this book show, is a familiar and even indispensable mode of argument. But it can be treacherous because it runs the risk of the **fallacy of false analogy**. Unfortunately, we have no simple or foolproof way of

distinguishing between the useful, legitimate analogies and the others. The key question to ask yourself is this: Do the two things put into analogy differ in any essential and relevant respect, or are they different only in unimportant and irrelevant aspects?

In a famous example from his discussion in support of suicide, philosopher David Hume rhetorically asked: "It would be no crime in me to divert the Nile or Danube from its course, were I able to effect such purposes. Where then is the crime of turning a few ounces of blood from their natural channel?" This is a striking analogy, except that it rests on a false assumption. No one has the right to divert the Nile or the Danube or any other major international watercourse; it would be a catastrophic crime to do so without the full consent of people living in the region, their government, and so forth. Therefore, arguing by analogy, one might well say that no one has the right to take his or her own life, either. Thus, Hume's own analogy can be used to argue against his thesis that suicide is no crime. But let us ignore the way in which his example can be turned against him. The analogy is a terrible one in any case. Isn't it obvious that the Nile, whatever its exact course, would continue to nourish Egypt and the Sudan, whereas the blood flowing out of someone's veins will soon leave that person dead? The fact that the blood is the same blood, whether in one's body or in a pool on the floor (just as the water of the Nile is the same body of water whatever path it follows to the sea) is, of course, irrelevant to the question of whether one has the right to commit suicide.

Let us look at a more complex example. During the 1960s, when the United States was convulsed over the purpose and scope of its military involvement in Southeast Asia, advocates of more vigorous U.S. military participation appealed to the so-called domino effect, supposedly inspired by a passing remark from President Eisenhower in the 1950s. The analogy refers to the way in which a row of standing dominoes will collapse, one after the other, if the first one is pushed. If Vietnam turns Communist, according to this analogy, so too will its neighbors, Laos and Cambodia, followed by Thailand and then Burma, until the whole region is as communist as China to the north. The domino analogy (or metaphor) provided, no doubt, a vivid illustration and effectively portrayed the worry of many anti-Communists. But did it really shed any light on the likely pattern of political and military developments in the region? The history of events there during the 1970s and 1980s did not bear out the domino analogy.

Straw Man It is often tempting to reframe or report your opponent's thesis to make it easier to attack and perhaps refute it. If you do this in the course of an argument, you are creating a straw man, a thing of no substance and easily blown away. The straw man you've constructed is usually a radically conservative or extremely liberal thesis, which few if any would want to defend. That is why it is easier to refute than the view your opponent actually holds. "So you defend the death penalty—and all the horrible things done in its name. No one in his right mind would hold such a view." It's highly unlikely that your friend supports *everything* that has been done in the name of capital punishment—crucifixion and beheading, for example, or execution of the children of the guilty offender.

Special Pleading We all have our favorites—relatives, friends, and neighbors—and we are all too likely to show that favoritism in unacceptable ways. How about this: "Yes, I know Billy hit Sally first, but he's my son. He's a good boy, and I know he must have had a good reason." Or this: "True, she's late for work again—the third time this week!—but her uncle's my friend, and it will be embarrassing to me if she is fired, so we'll just ignore it." Special pleading inevitably leads to unmerited advantages, as illustrated above.

Begging the Question The argument over whether the death penalty is a deterrent illustrates another fallacy. From the fact that you live in a death-penalty state and were not murdered yesterday, we cannot infer that the death penalty was a deterrent. Yet it is tempting to make this inference, perhaps because—all unawares—we are relying on the **fallacy of begging the question**. If someone tacitly assumes from the start that the death penalty is an effective deterrent, then the fact that you weren't murdered yesterday certainly looks like evidence for the truth of that assumption. But it isn't, so long as there are competing but unexamined alternative explanations, as in this case. (The fallacy is called "begging the question," *petitio principii* in Latin, because the conclusion of the argument is hidden among its assumptions—and so the conclusion, not surprisingly, follows from the premises.)

Of course, the fact that you weren't murdered is *consistent* with the claim that the death penalty is an effective deterrent, just as someone else's being murdered is also consistent with that claim (for an effective deterrent need not be a *perfect* deterrent). In general, from the fact that two propositions are consistent with each other, we cannot infer that either is evidence for the other.

Note: The term "begging the question" is often wrongly used to mean "raises the question," as in "His action of burning the flag begs the question, What drove him to do such a thing?"

False Dichotomy Sometimes oversimplification takes a more complex form, in which contrary possibilities are wrongly presented as though they were exhaustive and exclusive. "Either we get tough with drug users, or we must surrender and legalize all drugs." Really? What about doing neither and instead offering education and counseling, detoxification programs, and incentives to "Say no"? A favorite of debaters, **either/or** reasoning always runs the risk of ignoring a third (or fourth) possibility. Some disjunctions are indeed exhaustive: "Either we get tough with drug users, or we do not." This proposition, though vague (what does "get tough" really mean?), is a tautology; it cannot be false, and there is no third alternative. But most disjunctions do not express a pair of *contradictory* alternatives: They offer only a pair of *contrary* alternatives, and mere contraries do not exhaust the possibilities (recall our discussion of contraries versus contradictories on page 319).

A writer would be guilty of creating a false dichotomy if, for example, in an argument in favor of flogging his entire discussion was built on the relative superiority of whipping over imprisonment, as though there was no alternative punishment worth considering. But of course, there is, notably community service (especially for non-violent, juvenile, or many first offenders).

Oversimplification "Poverty causes crime," "Taxation is unfair," "Truth is stranger than fiction"—these are examples of generalizations that exaggerate and therefore oversimplify the truth. Poverty as such can't be the sole cause of crime because many poor people do not break the law. Some taxes may be unfairly high, others unfairly low—but there is no reason to believe that *every* tax is unfair to all those who have to pay it. Some true stories do amaze us as much as or more than some fictional stories, but the reverse is true, too. (In the language of the Toulmin method, **oversimplification** is the result of a failure to use suitable modal qualifiers in formulating one's claims or grounds or backing.)

Red Herring The fallacy of **red herring**, less colorfully named irrelevant thesis, occurs when one tries to distract one's audience by invoking a consideration that is irrelevant to the topic under discussion. (This fallacy probably gets its name from the fact that a rotten

herring, or a cured herring, which is reddish, will throw pursuing hounds off the right track.) Consider this case. Some critics, seeking to defend our government's refusal to sign the Kyoto accords to reduce global warming, argue that signing is supported mainly by left-leaning scientists. This argument supposedly shows that global warming—if there is such a thing—is not a serious, urgent issue. But claiming that the supporters of these accords are left-inclined is a red herring, an irrelevant thesis. By raising doubts about the political views of the advocates of signing, it distracts attention from the scientific question (Is there global warming?) and also from the separate political question (Ought the United States sign these accords?). The refusal of a government to sign these accords does not show there is no such thing as global warming. And even if all of the advocates of signing were left-leaning (they aren't), this fact (if it were a fact, but it isn't) would not show that worries about global warming are exaggerated.

Fallacies of Relevance

Tu Quoque The Romans had a word for it: *Tu quoque* means "you, too." Consider this: "You're a fine one, trying to persuade me to give up smoking when you indulge yourself with a pipe and a cigar from time to time. Maybe I should quit, but then so should you. As things stand now, however, it's hypocritical of you to complain about my smoking when you persist in the same habit." The fallacy is this: The merit of a person's argument has nothing to do with the person's character or behavior. Here, the assertion that smoking is bad for one's health is *not* weakened by the fact that a smoker offers the argument.

The Genetic Fallacy A member of the family of fallacies that includes poisoning the well and ad hominem is the **genetic fallacy**. Here the error takes the form of arguing against some claim by pointing out that its origin (genesis) is tainted or that it was invented by someone deserving our contempt. Thus, one might attack the ideas of the Declaration of Independence by pointing out that its principal author, Thomas Jefferson, was a slaveholder. Assuming that it is not anachronistic and inappropriate to criticize a public figure of two centuries ago for practicing slavery, and conceding that slavery is morally outrageous, it is nonetheless fallacious to attack the ideas or even the sincerity of the Declaration by attempting to impeach the credentials of its author. Jefferson's moral faults do not by themselves

falsify, make improbable, or constitute counterevidence to the truth or other merits of the claims made in his writings. At most, one's faults cast doubt on one's integrity or sincerity if one makes claims at odds with one's practice.

The genetic fallacy can take other forms less closely allied to ad hominem argument. For example, an opponent of the death penalty might argue,

Capital punishment arose in barbarous times; but we claim to be civilized; therefore, we should discard this relic of the past.

Such reasoning shouldn't be persuasive because the question of the death penalty for our society must be decided by the degree to which it serves our purposes—justice and defense against crime, presumably—to which its historic origins are irrelevant. The practices of beer- and wine-making are as old as human civilization, but their origin in antiquity is no reason to outlaw them in our time. The curious circumstances in which something originates usually play no role whatever in its validity. Anyone who would argue that nothing good could possibly come from molds and fungi is refuted by Sir Alexander Fleming's discovery of penicillin in 1928.

Poisoning the Well During the 1970s some critics of the Equal Rights Amendment (ERA) argued against it by pointing out that Marx and Engels, in their *Communist Manifesto*, favored equality of women and men—and therefore the ERA was immoral, undesirable, and perhaps even a Communist plot. This kind of reasoning is an attempt to **poison the well**; that is, an attempt to shift attention from the merits of the argument—the validity of the reasoning, the truth of the claims—to the source or origin of the argument. Such criticism deflects attention from the real issue; namely, whether the view in question is true and what the quality of evidence is in its support. The mere fact that Marx (or Hitler, for that matter) believed something does not show that the belief is false or immoral; just because some scoundrel believes the world is round, that is no reason for you to believe it is flat.

Appeal to Ignorance In the controversy over the death penalty, the issues of deterrence and executing the innocent are bound to be raised. Because no one knows how many innocent persons have been convicted for murder and wrongfully executed, it is tempting for abolitionists to argue that the death penalty is too risky. It is equally tempting for the proponent of the death penalty to argue

that since no one knows how many people have been deterred from murder by the threat of execution, we abolish it at our peril.

Each of these arguments suffers from the same flaw: the **fallacy of appeal to ignorance**. Each argument invites the audience to draw an inference from a premise that is unquestionably true—but what is that premise? It asserts that there is something “we don't know.” But what we *don't* know cannot be *evidence* for (or against) anything. Our ignorance is no reason for believing anything, except perhaps that we ought to try to undertake an appropriate investigation in order to reduce our ignorance and replace it with reliable information.

Ad Hominem Closely allied to poisoning the well is another fallacy, **ad hominem** argument (from the Latin for “against the person”). A critic can easily yield to the temptation to attack an argument or theory by trying to impeach or undercut the credentials of its advocates.

Example: Jones is arguing that prayer should not be permitted in public schools, and Smith responds by pointing out that Jones has twice been convicted of assaulting members of the clergy. Jones's behavior doubtless is reprehensible, but the issue is not Jones, it is prayer in school, and what must be scrutinized is Jones's argument, not his police record or his character.

Appeal to Authority The example of Jefferson given to illustrate the genetic fallacy can be turned around to illustrate another fallacy. One might easily imagine someone from the South in 1860 defending the slave-owning society of that day by appealing to the fact that no less a person than Jefferson—a brilliant public figure, thinker, and leader by any measure—owned slaves. Or today one might defend capital punishment on the ground that Abraham Lincoln, surely one of the nation's greatest presidents, signed many death warrants during the Civil War, authorizing the execution of Union soldiers. No doubt the esteem in which such figures as Jefferson and Lincoln are deservedly held amounts to impressive endorsement for whatever acts and practices, policies and institutions, they supported. But the **authority** of these figures in itself is not evidence for the truth of their views, and so their authority cannot be a reason for anyone to agree with them. Obviously, Jefferson and Lincoln themselves could not support their beliefs by pointing to the fact that they held them. Because their own authority is no reason for them to believe what they believe, it is no reason for anyone else, either.

Sometimes the appeal to authority is fallacious because the authoritative person is not an expert on the issue in dispute. The fact that a high-energy physicist has won the Nobel Prize is no reason for attaching any special weight to her views on the causes of cancer, the reduction of traffic accidents, or the legalization of marijuana. On the other hand, one would be well advised to attend to her views on the advisability of ballistic missile-defense systems, for there may be a connection between the kind of research for which she received the prize and the defense research projects.

All of us depend heavily on the knowledge of various experts and authorities, and so we tend not to ignore their views. Conversely, we should resist the temptation to accord their views on diverse subjects the same respect that we grant them in the area of their expertise.

Appeal to Fear The Romans called this fallacy *ad baculum*, “resorting to violence” (*baculum* means “stick,” or “club”). Trying to persuade people to agree with you by threatening them with painful consequences is obviously an appeal that no rational person would contemplate. The violence need not be physical; if you threaten someone with the loss of a job, for instance, you are still using a stick. Violence or the threat of harmful consequences in the course of an argument is beyond reason and always shows the haste or impatience of those who appeal to it. It is also an indication that the argument on its merits would be unpersuasive, inconclusive, or worse. President Teddy Roosevelt’s epigrammatic doctrine for the kind of foreign policy he favored—“Speak softly but carry a big stick”—illustrates an attempt to have it both ways, an appeal to reason for starters but a recourse to coercion, or the threat of coercion, as a backup if needed.

Finally, we add two fallacies, not easily embraced by Engel’s three categories that have served us well thus far (ambiguity, erroneous presumption, and irrelevance): death by a thousand qualifications and protecting the hypothesis.

Death by a Thousand Qualifications In a letter of recommendation sent in support of an applicant for a job on your newspaper, you find this sentence: “Young Smith was the best student I’ve ever taught in an English course.” Pretty strong endorsement, you think, except that you do not know, because you have not been told, the letter writer is a very junior faculty member, has been teaching for only two years, is an instructor in the history department, taught a section of freshman English as a courtesy for a sick colleague, and had only eight students

enrolled in the course. Thanks to these implicit qualifications, the letter writer did not lie or exaggerate in his praise; but the effect of his sentence on you, the unwitting reader, is quite misleading. The explicit claim in the letter, and its impact on you, is quite different from the tacitly qualified claim in the mind of the writer.

Death by a thousand qualifications gets its name from the ancient torture of death by a thousand small cuts. Thus, a bold assertion can be virtually killed, its true content reduced to nothing, bit by bit, as all the appropriate or necessary qualifications are added to it. Consider another example. Suppose you hear a politician describing another country (let’s call it Ruritania so as not to offend anyone) as a “democracy”—except it turns out that Ruritania doesn’t have regular elections, lacks a written constitution, has no independent judiciary, prohibits religious worship except of the state-designated deity, and so forth. So what is left of the original claim that Ruritania is a democracy is little or nothing. The qualifications have taken all the content out of the original description.

Protecting the Hypothesis In Chapter 3, we contrasted *reasoning* and *rationalization* (or the finding of bad reasons for what one intends to believe anyway). Rationalization can take subtle forms, as the following example indicates. Suppose you’re standing with a friend on the shore or on a pier, and you watch as a ship heads out to sea. As it reaches the horizon, it slowly disappears—first the hull, then the upper decks, and finally the tip of the mast. Because the ship (you both assume) isn’t sinking, it occurs to you that you have in this sequence of observations convincing evidence that the earth’s surface is curved. Nonsense, says your companion. Light waves sag, or bend down, over distances of a few miles, and so a flat surface (such as the ocean) can intercept them. Hence the ship, which appears to be going “over” the horizon, really isn’t: It’s just moving steadily farther and farther away in a straight line. Your friend, you discover to your amazement, is a card-carrying member of the Flat Earth Society (yes, there really is such an organization). Now most of us would regard the idea that light rays bend down in the manner required by the Flat Earther’s argument as a rationalization whose sole purpose is to protect the flat-earth doctrine against counterevidence. We would be convinced it was a rationalization, and not a very good one at that, if the Flat Earther held to it despite a patient and thorough explanation from a physicist that showed modern optical theory to be quite incompatible with the view that light waves sag.



A CHECKLIST FOR EVALUATING AN ARGUMENT FROM A LOGICAL POINT OF VIEW

- Is the argument purely deductive, purely inductive, or a mixture of the two?
- If it is deductive, is it valid?
- If it is valid, are all its premises and assumptions true?
- If it is not valid, what fallacy does it commit?
- If it is not valid, are the claims at least consistent with each other?
- If it is not valid, can you think of additional plausible assumptions that would make it valid?
- If the argument is inductive, on what observations is it based?
- If the argument is deductive, how probable are its premises and its conclusion?
- In any case, can you think of evidence that would further confirm the conclusion? Disconfirm the conclusion?

This example illustrates two important points about the *backing* of arguments. First, it is always possible to protect a hypothesis by abandoning adjacent or connected hypotheses; this is the tactic our Flat Earth friend has used. This maneuver is possible, however, only because—and this is the second point—whenever we test a hypothesis, we do so by taking for granted (usually quite unconsciously) many other hypotheses as well. So the evidence for the hypothesis we think we are confirming is impossible to separate entirely from the adequacy of the connected hypotheses. As long as we have no reason to doubt that light rays travel in straight lines (at least over distances of a few miles), our Flat Earth friend's argument is unconvincing. But once that hypothesis is itself put in doubt, the idea that looked at first to be a pathetic rationalization takes on an even more troublesome character.

There are, then, not one but two fallacies exposed by this example. The first and perhaps graver is in rigging your hypothesis so that *no matter what* observations are brought against it, you will count nothing as falsifying it. The second and subtler is in thinking that as you test one hypothesis, all of your other background beliefs are left safely to one side, immaculate and uninvolved. On

the contrary, our beliefs form a corporate structure, intertwined and connected to each other with great complexity, and no one of them can ever be singled out for unique and isolated application, confirmation, or disconfirmation, to the world around us.

EXERCISE: FALLACIES—OR NOT?

Here, for diversion and practice, are some fallacies in action. Some of these statements, however, are not fallacies. Can you tell which is which? Can you detect *what* has gone wrong in the cases where something has gone wrong? Please explain your reasoning.

1. Abortion is murder—and it doesn't matter whether we're talking about killing a human embryo or a human fetus.
2. Euthanasia is not a good thing, it's murder—and it doesn't matter how painful one's dying may be.
3. Never loan a tool to a friend. I did once and never got it back.
4. If the neighbors don't like our loud music, that's just too bad. After all, we have a right to listen to the music we like when and where we want to play it.
5. The Good Samaritan in the Bible was pretty foolish; he was taking grave risks with no benefits for him in sight.
6. "Shoot first and ask questions afterward" is a good epigram for the kind of foreign policy we need.
7. "You can fool some of the people all of the time, and you can fool all the people some of the time, but you can't fool all the people all of the time." That's what Abraham Lincoln said, and he was right.
8. It doesn't matter whether Shakespeare wrote the plays attributed to him. What matters is whether the plays are any good.
9. The Golden Gate Bridge in San Francisco ought to be closed down. After all, just look at all the suicides that have occurred there.
10. Reparations for African Americans are way overdue; it's just another version of the reparations eventually paid to the Japanese Americans who were wrongly interned in 1942 during World War II.
11. Animals don't have rights any more than do trees or stones. They don't have desires, either. What they have are feelings and needs.
12. The average American family is said to have 2.1 children. This is absurd—did you ever meet 2.1 children?
13. My marriage was a failure, which just proves my point: Don't ever get married in the first place.
14. The Red Queen in *Alice in Wonderland* was right: Verdict first, evidence later.
15. Not until astronauts sailed through space around the moon and could see its back side for themselves did we have adequate reason to believe that the moon even had a back side.

16. If you start out with a bottle of beer a day and then go on to a glass or two of wine on the weekends, you're well on your way to becoming a hopeless drunk.
17. Two Indians are sitting on a fence. The small Indian is the son of the big Indian, but the big Indian is not the small Indian's father. How is that possible?
18. If you toss a coin five times and each time it comes up heads, is it more likely than not that on the sixth throw you'll come up heads again—or is it more likely that you'll come up tails? Or is neither more likely?
19. Going to church on a regular basis is bad for your health. Instead of sitting in a pew for an hour each Sunday you'd be better off taking an hour's brisk walk.
20. You can't trust anything he says. When he was young he was an avid Communist.
21. Since 9/11 we've tried and convicted few terrorists, so our defense systems must be working.
22. We can trust the White House in its press releases because it's a reliable source of information.
23. Intelligent design must be true because the theory of evolution can't explain how life began.
24. Andreas Serrano's notorious photograph called *Piss Christ* (1989), showing a small plastic crucifix submerged in a glass of urine, never should have been put on public display, let alone financed by public funds.
25. Doubting Thomas was right—you need more than somebody's say-so to support a claim of resurrection.
26. You are a professional baseball player and you have a good-luck charm. When you wear it the team wins. When you don't wear it the team loses. What do you infer?
27. Resolve the following dilemma: When it rains you can't fix the hole in the roof. When it's not raining there is no need to mend the roof. Conclusion: Leave the roof as it is.
28. You are at the beach and you watch a ship steaming toward the horizon. Bit by bit it disappears from view—first the masts, then the upper deck, then the main deck, then the stern, and then it's gone. Why would it be wrong to infer that the ship is sinking?
29. How can it be true that "it's the exception that proves the rule"? If anything, isn't it the exception that *disproves* the rule?
30. How come herbivores don't eat herbs?
31. In the 1930s it was commonplace to see ads announcing "More Doctors Smoke Camels." What do you make of such an ad?
32. Suppose the only way you could save five innocent people was by killing one of them. Would you do it? Suppose the only way you could save one innocent person was by killing five others. Would you do it?

Max Shulman

Having read about proper and improper arguments, you are now well equipped to read a short story on the topic.

Max Shulman (1919–1988) began his career as a writer when he was a journalism student at the University of Minnesota. Later he wrote humorous novels, stories, and plays. One of his novels, *Barefoot Boy with Cheek* (1943), was made into a musical, and another, *Rally Round the Flag, Boys!* (1957), was made into a film starring Paul Newman and Joanne Woodward. The *Tender Trap* (1954), a play he wrote with Robert Paul Smith, still retains its popularity with theater groups.

"*Love Is a Fallacy*" was first published in 1951, when demeaning stereotypes about women and minorities were widely accepted in the marketplace as well as the home. Thus, jokes about domineering mothers-in-law or about dumb blondes routinely met with no objection.

Love Is a Fallacy

Cool was I and logical. Keen, calculating, perspicacious, acute, and astute—I was all of these. My brain was as powerful as a dynamo, as precise as a chemist's scales, as penetrating as a scalpel. And—think of it!—I was only eighteen.

It is not often that one so young has such a giant intellect. Take, for example, Petey Bellows, my roommate at the university. Same age, same background, but dumb as an ox. A nice enough fellow, you understand, but nothing upstairs. Emotional type. Unstable. Impressionable. Worst of all, a faddist. Fads, I submit, are the very negation of reason. To be swept up in every new craze that comes along, to surrender yourself to idiocy just because everybody else is doing it—this, to me, is the acme of mindlessness. Not, however, to Petey.

One afternoon I found Petey lying on his bed with an expression of such distress on his face that I immediately diagnosed appendicitis. "Don't move," I said. "Don't take a laxative. I'll call a doctor."

"Raccoon," he mumbled thickly.

"Raccoon?" I said, pausing in my flight.

"I want a raccoon coat," he wailed.

I perceived that his trouble was not physical, but mental. "Why do you want a raccoon coat?"

"I should have known it," he cried, pounding his temples. "I should have known they'd come back when the Charleston came back. Like a fool I spent all my money for textbooks, and now I can't get a raccoon coat."