
Critical Thinking Handout

WHY WRITE?

If we agree that studying argumentation provides important critical tools, one last question remains: Why write? Isn't it possible to learn the rules by reading and talking about the qualities of good and bad arguments? Not quite. All writers, both experienced and inexperienced, will probably confess that looking at what they have written, even after long thought, can produce a startled disclaimer: But that isn't what I meant to say! They know that more analysis and more hard thinking are in order. Writers are also aware that words on paper have an authority and a permanency that invite more than casual deliberation. It is one thing to make an assertion, to express an idea or a strong feeling in conversation, and perhaps even to deny it later; it is quite another to write out an extended defense of your own position or an attack on someone else's that will be read and perhaps criticized by people unsympathetic to your views.

Students are often told that they must become better thinkers if they are to become better writers. It works the other way, too. In the effort to produce a clear and convincing argument, a writer matures as a thinker and a critic. The very process of writing calls for skills that make us better thinkers. Writing argumentative essays tests and enlarges important mental skills — developing and organizing ideas, evaluating evidence, observing logical consistency, expressing ourselves clearly and economically — that we need to exercise all our lives in our various social roles, whether or not we continue to write after college.

THE TERMS OF ARGUMENT

One definition of argument, emphasizing audience, is that: "Argumentation is the art of influencing others, through the medium of reasoned discourse, to believe or act as we wish them to believe or act." A distinction is sometimes made between argument and persuasion. Argument, according to most authorities, gives primary importance to logical appeals. Persuasion introduces the element of ethical and emotional appeals. The difference is one of emphasis. In real-life arguments about social policy, the distinction is hard to measure. I use the term *argument* to represent forms of discourse that attempt to persuade readers or listeners to accept a claim, whether acceptance is based on logical or on emotional appeals or, as is usually the case, on both. The following brief definition includes other elements: *An argument is a statement or statements offering support for a claim.*

An argument is composed of at least three parts: the claim, the support, and the warrant .¹

The Claim

The claim (also called a *proposition*) answers the question "What are you trying to prove?" In an argument essay it will appear as the thesis statement of your essay (usually at the end of your introduction paragraph). There are three principal kinds of claim: claims of fact, of value, and of policy. *Claims of fact* assert that a condition has existed, exists, or will exist and are based on facts or data that the audience will accept as being objectively verifiable:

¹ Some of the terms and analyses used in this text are adapted from Stephen Toulmin's *The Uses of Argument* (Cambridge University Press, 1958).

The present cocaine epidemic is not unique. From 1885 to the 1920s, cocaine was as widely used as it is today.

Horse racing is the most dangerous sport.

California will experience colder, stormier weather for the next ten years.

All these claims must be supported by data. Although the last example is an inference or an educated guess about the future, a reader will probably find the prediction credible if the data seem authoritative.

Claims of value attempt to prove that some things are more or less desirable than others. They express approval or disapproval of standards of taste and morality. Advertisements and reviews of cultural events are one common source of value claims, but such claims emerge whenever people argue about what is good or bad, beautiful or ugly.

The opera *Tannhduser* provides a splendid viewing as well as listening experience.

Football is one of the most dehumanizing experiences a person can face. — Dave Meggyesy

Ending a patient's life intentionally is absolutely forbidden on moral grounds. — Presidential Commission on Medical Ethics, 1983

Claims of policy assert that specific policies should be instituted as solutions to problems. The expression *should, must, or ought to* usually appears in the statement.

Prisons should be abolished because they are crime-manufacturing concerns.

Our first step must be to immediately establish and advertise drastic policies designed to bring our own population under control. — Paul Ehrlich, biologist

The New York City Board of Education should make sure that qualified women appear on any new list of candidates for Chancellor of Education.

Policy claims call for analysis of both fact and value. (A full discussion of claims follows later in the handout.)

The Support

Support consists of the materials used by the arguer to convince an audience that his or her claim is sound. These materials include *evidence* and *motivational appeals*. The evidence or data consist of facts, statistics, and testimony from experts. The motivational appeals are the ones that the arguer makes to the values and attitudes of the audience to win support for the claim. The word *motivational* points out that these appeals are the reasons that move an audience to accept a belief or adopt a course of action. For example, in his argument advocating population control, Ehrlich first offered statistical evidence to prove the magnitude of the population explosion. But he also made a strong appeal to the generosity of his audience to persuade them to sacrifice their own immediate interests to those of future generations.

The Warrant

The warrant is an inference or an assumption, a belief or principle that is taken for granted. A warrant is a guarantee of reliability; in argument it guarantees the soundness of the relationship between the support and the claim. It allows the reader to make the connection between the support and the claim.

Warrants or assumptions underlie all the claims we make. They may be stated or unstated. If the arguer believes that the audience shares his assumption, he may feel it unnecessary to express it. But if he thinks that the audience is doubtful or hostile, he may decide to state the assumption to emphasize its importance or argue for its validity.

This is how the warrant works. One speaker makes the claim that vegetarianism is more healthful than a diet containing meat. As support he offers the evidence that the authors of a book he has read recommend vegetarianism for greater health and longer life. He does not state his warrant — that the authors of the book are trustworthy guides to theories of healthful diet. In outline form the argument looks like this:

CLAIM:	Adoption of a vegetarian diet leads to healthier and longer life.
SUPPORT:	The authors of <i>Becoming a Vegetarian Family</i> say so.
WARRANT:	The authors of <i>Becoming a Vegetarian Family</i> are reliable sources of information on diet.

A writer or speaker may also need to offer support for the warrant. In the case cited above, the second speaker is reluctant to accept the unstated warrant, suggesting that the authors may be quacks. The first speaker will need to provide support for the assumption that the authors are trustworthy, perhaps by introducing proof of their credentials in science and medicine. Notice that although the second speaker accepts the evidence, he cannot agree that the claim has been proved unless he also accepts the warrant. If he fails to accept the warrant — that is, if he refuses to believe that the authors are credible sources of information about diet — then the evidence cannot support the claim.

The following example demonstrates how a different kind of warrant, based on values, can also lead an audience to accept a claim.

CLAIM:	Laws making marijuana illegal should be repealed.
SUPPORT:	People should have the right to use any substance they wish.
WARRANT:	No laws should prevent citizens from exercising their rights.

Support for repeal of the marijuana laws often consists of medical evidence that marijuana is harmless. Here, however, the arguer contends that an important ethical principle is at work: Nothing should prevent people from exercising their rights, including the right to use any substance, no matter how harmful. Let us suppose that the reader agrees with the supporting statement, that individuals should have the right to use any substance. But to accept the claim, the reader must also agree with the principle expressed in the warrant — that government should not interfere with the individual's right. He or she can then agree that laws making marijuana illegal should be repealed. Notice that this warrant, like all warrants, certifies that the relationship between the support and the claim is sound.

One more important characteristic of the warrant deserves mention. In many cases, the warrant is a more general statement of belief than the claim. It can, therefore, support many claims, not only the one in a particular argument. For example, the warrant you have just read — "No laws should

prevent citizens from exercising their rights" — is a broad assumption or belief that we take for granted and that can underlie claims about many other practices in American society.

Definition, Language, Logic

In addition to the claim, the support, and the warrant, several other elements of clear, persuasive prose are crucial to good argument.

One of the most important is definition. In fact, many of the controversial questions you will read or write about are primarily arguments of definition. Such terms as *abortion*, *pornography*, *racism*, *poverty*, *addiction*, and *mental illness* must be defined before useful solutions to the problems they represent can be formulated.

Another important resource is the careful use of language, not only to define terms and express personal style but also to reflect clarity of thought and avoid the clichés and outworn slogans that frequently substitute for fresh ideas.

Last, we have included an examination of induction and deduction, the classic elements of logic. Understanding the way in which these reasoning processes work can help you to determine the truth and validity of your own and other arguments and to identify faulty reasoning.

THE AUDIENCE

All arguments are composed with an audience in mind. We have already pointed out that an argument is an implicit dialogue or exchange. Often the writer of an argument about a public issue is responding to another writer or speaker who has made a claim that needs to be supported or opposed. In writing your own arguments, *you should assume that there is a reader who may not agree with you.*

Speechmakers are usually better informed than writers about their audience. Some writers, however, are familiar with the specific persons or groups who will read their arguments; advertising copywriters are a conspicuous example. They discover their audiences through sophisticated polling and marketing techniques and direct their messages to a well-targeted group of prospective buyers. Other professionals may be required to submit reports to persuade a specific and clearly defined audience of certain beliefs or courses of action: An engineer may be asked by an environmental interest group to defend his plans for the building of a sewage treatment plant; or a town planner may be called on to tell the town council why she believes that rent control may not work; or a sales manager may find it necessary to explain to his superior why a new product should be launched in the Midwest rather than the South.

In such cases the writer asks some or all of the following questions about the audience:

Why has this audience requested this report? What do they want to get out of it?

How much do they already know about the subject?

Are they divided or agreed on the subject?

What is their emotional involvement with the issues?

Assessing Credibility

Providing abundant evidence and making logical connections between the parts of an argument may not be enough to win agreement from an audience. In fact, success in convincing an audience is almost always inseparable from the writer's credibility, or the audience's belief in the writer's trustworthiness. Aristotle, the Greek philosopher who wrote a treatise on argument that has influenced its study and practice for more than two thousand years, considered credibility — what

he called *ethos*² — the most important element in the arguer's ability to persuade the audience to accept his or her claim.

Aristotle named "intelligence, character, and goodwill" as the attributes that produce credibility. Today we might describe these qualities somewhat differently, but the criteria for judging a writer's credibility remain essentially the same. First, the writer must convince the audience that he is knowledgeable, that he is as well informed as possible about the subject. Second, he must persuade his audience that he is not only truthful in the presentation of his evidence but also morally upright and dependable. Third, he must show that, as an arguer with good intentions, he has considered the interests and needs of others as well as his own.

As an example in which the credibility of the arguer is at stake, consider a wealthy Sierra Club member who lives on ten acres of a magnificent oceanside estate and who appears before a community planning board to argue against future development of the area. His claim is that more building will destroy the delicate ecological balance of the area. The board, acting in the interests of all the citizens of the community, will ask themselves: Has the arguer proved that his information about environmental impact is complete and accurate? Has he demonstrated that he sincerely desires to preserve the wilderness, not merely his own privacy and space? And has he also made clear that he has considered the needs and desires of those who might want to live in a housing development by the ocean? If the answers to all these questions are yes, then the board will hear the arguer with respect, and the arguer will have begun to establish his credibility.

A reputation for intelligence, character, and goodwill is not often won overnight. And it can be lost more quickly than it is won. Once a writer or speaker has betrayed an audience's belief in her character or judgment, she may find it difficult to persuade an audience to accept subsequent claims, no matter how sound her data and reasoning are. "We give no credit to a liar," said Cicero, "even when he speaks the truth."

Political life is full of examples of lost and squandered credibility. After it was discovered that President Lyndon Johnson had deceived the American public about U.S. conduct in the Vietnam War, he could not regain his popularity. After President Gerald Ford pardoned former President Richard Nixon for his complicity in the Watergate scandal, Ford was no longer a serious candidate for reelection. After proof that President Clinton had lied to a grand jury and the public about his sexual behavior, public approval of his political record remained high, but approval of his moral character declined and threatened to diminish his influence.

We can see the practical consequences when an audience realizes that an arguer has been guilty of a deception — misusing facts and authority, suppressing evidence, distorting statistics, violating the rules of logic. But suppose the arguer is successful in concealing his or her manipulation of the data and can persuade an uninformed audience to take the action or adopt the idea that he or she recommends. Even supposing that the argument promotes a "good" cause, is the arguer justified in using evasive or misleading tactics?

The answer is no. To encourage another person to make a decision on the basis of incomplete or dishonestly used data is profoundly unethical. It indicates lack of respect for the rights of others — their right to know at least as much as you do about the subject, to be allowed to judge and compare, to disagree with you if they challenge your own interests. If the moral implications are still not clear, try to imagine yourself not as the perpetrator of the lie but as the victim.

There is also a danger in measuring success wholly by the degree to which audiences accept our arguments. Both as writers and readers, we must be able to respect the claim, or proposition, and what it tries to demonstrate. Toulmin has said: "To conclude that a proposition is true, it is not enough to know that this [person] or that finds it 'credible': the proposition itself must be *worthy* of credence."³

² *ethos*: the fundamental and distinctive character of a group, social context, or period of time, typically expressed in attitudes, habits, and beliefs

³ *An Examination of the Place of Reason in Ethics* (Cambridge: Cambridge University Press, 1964), p. 71.

Acquiring Credibility

You may wonder how you can acquire credibility. You are not yet an expert in many of the subjects you will deal with in assignments, although you are knowledgeable about many other things, including your cultural and social activities. But there are several ways in which you can create confidence by your treatment of topics derived from academic disciplines, such as political science, psychology, economics, sociology, and art, on which most assignments will be based.

First, you can submit evidence of careful research, demonstrating that you have been conscientious in finding the best authorities, giving credit, and attempting to arrive at the truth. Second, you can adopt a thoughtful and judicious tone that reflects a desire to be fair in your conclusion. Tone expresses the attitude of the writer toward his or her subject. When the writer feels strongly about the subject and adopts a belligerent or complaining tone, for example, he or she forgets that readers who feel differently may find the tone disagreeable and unconvincing. In the following excerpt a student expresses his feelings about standard grading — that is, grading by letter or number on a scale that applies to a whole group.

You go to school to learn, not to earn grades. To be educated, that's what they tell you. "He's educated, he graduated magna cum laude." What makes a magna cum laude man so much better than a man that graduates with a C? They are both still educated, aren't they? No one has a right to call someone less educated because they got a C instead of an A. Let's take both men and put them in front of a car. Each car has something wrong with it, Each man must fix his broken car. Our C man goes right to work while our magna cum laude man hasn't got the slightest idea where to begin. Who's more educated now?

Probably a reader who disagreed with the claim — that standard grading should not be used — would find the tone, if not the evidence itself, unpersuasive. The writer sounds as if he is defending his own ability to do something that an honors graduate can't do, while ignoring the acknowledged purposes of standard grading in academic subjects. He sounds, moreover, as if he's angry because someone has done him an injury. Compare the preceding passage to the following one, written by a student on the same subject.

Grades are the play money in a university Monopoly game. As long as the tokens are offered, the temptation will be largely irresistible to play for them. Students are so busy taking notes, doing tests, and getting tokens that they have forgotten to ask: Of what worth is all this? Or perhaps they ask and the grade is their answer.

One certainly learns something in the passive lecture-note-read-note-test process: how to do it all more efficiently next time (in the hope of eventually owning Boardwalk and Park Place). As Marshall McLuhan has said, we learn what we do. In this process most students come to view learning as studying and remembering what other people have learned. They assume that knowledge is logically and for practical reasons divided up into discrete pieces called "disciplines" and that the highest knowledge is achieved by specializing in a discipline. By getting good grades in a lot of disciplines they conclude they have learned a lot. They have indeed, and it is too bad.⁴

Most readers would consider this writer more credible than the first, in part because he has adopted a tone that seems moderate and impersonal. That is, he does not convey the impression that he is interested only in defending his own grades. Notice also that the language of this passage suggests a higher level of learning and research.

Sometimes, of course, an expression of anger or even outrage is appropriate and morally justified. But if readers do not share your sense of outrage, you must try to reach them through a more moderate approach. In his autobiography, Benjamin Franklin recounted his attempts to acquire the habit of temperate language in argument:

⁴ Roy E. Terry in "Does Standard Grading Encourage Excessive Competitiveness?" *Change*, September 1974, p. 45.

Retaining . . . the habit of expressing myself in terms of modest diffidence, never using when I advance anything that may possibly be disputed, the words *certainly*, *undoubtedly*, or any others that give the air of positiveness to an opinion; but rather say, *I conceive*, or *I apprehend* a thing to be so or so; *it appears to me*, or *I should think it so or so for such and such reasons*, or I *imagine* it to be so, or *it is so if I am not mistaken*.— This habit I believe has been of great advantage to me, when I have had occasion to inculcate my opinions and persuade men into measures that I have been from time to time engaged in promoting.⁵

This is not to say that the writer must hedge his or her opinions or confess uncertainty at every point. Franklin suggests that the writer must recognize that other opinions may also have validity and that, although the writer may disagree, he or she respects the other opinions. Such an attitude will also dispose the reader to be more generous in evaluating the writer's argument.

A final method of establishing credibility is to produce a clean, literate, well-organized paper, with evidence of care in writing and proofreading. Such a paper will help persuade the reader to take your efforts seriously.

Claims

Claims, or propositions, represent answers to the question: "What are you trying to prove?" Although they are the conclusions of your arguments, they often appear as thesis statements. Claims can be classified as *claims of fact*, *claims of value*, and *claims of policy*.

CLAIMS OF FACT

Claims of fact assert that a condition has existed, exists, or will exist and that their support consists of factual information — information such as statistics, examples, and testimony that most responsible observers assume can be verified.

Many facts are not matters for argument: Our own senses can confirm them, and other observers will agree about them. We can agree that a certain number of students were in the classroom at a particular time, that lions make a louder sound than kittens, and that apples are sweeter than potatoes.

We can also agree about information that most of us can rarely confirm for ourselves — information in reference books, such as atlases, almanacs, and telephone directories; data from scientific resources about the physical world; and happenings reported in the media. We can agree on the reliability of such information because we trust the observers who report it.

However, the factual map is constantly being redrawn by new data in such fields as history and science that cause us to reevaluate our conclusions. For example, the discovery of the Dead Sea Scrolls in 1947 revealed that some books of the Bible — Isaiah, for one — were far older than we had thought. Researchers at New York Hospital Cornell Medical Center say that many symptoms

⁵ *The Autobiography of Benjamin Franklin*, ed. Louis P. Masur (Boston: Bedford Books, 1993), pp. 39-40. Italics are Franklin's.

previously thought inevitable in the aging process are now believed to be treatable and reversible symptoms of depression.⁶

In your conversations with other students you probably generate claims of fact every day, some of which can be verified without much effort, others of which are more difficult to substantiate.

CLAIM: Most of the students in this class come from towns within fifty miles of Boston.

To prove this the arguer would need only to ask the students in the class where they come from.

CLAIM: Students who take their courses pass/fail make lower grades than those who take them for specific grades.

In this case the arguer would need to have access to student records showing the specific grades given by instructors. (In most schools the instructor awards a letter grade, which is then recorded as a pass or a fail if the student has elected this option.)

CLAIM: The Red Sox will win the pennant this year.

This claim is different from the others because it is an opinion about what will happen in the future. But it can be verified (in the future) and is therefore classified as a claim of fact.

More complex factual claims about political and scientific matters remain controversial because proof on which all or most observers will agree is difficult or impossible to obtain.

CLAIM: Bilingual programs are less effective than English-only programs in preparing students for higher education.

CLAIM: The only life in the universe exists on this planet.

Not all claims are so neatly stated or make such unambiguous assertions. Because we recognize that there are exceptions to most generalizations, we often qualify our claims with words such as *generally*, *usually*, *probably*, and *as a rule*. It would not be true to state flatly, for example, "College graduates earn more than high school graduates." This statement is generally true, but we know that some high school graduates who are electricians or city bus drivers or sanitation workers earn more than college graduates who are schoolteachers or nurses or social workers. In making such a claim, therefore, the writer should qualify it with a word that limits the claim.

To support a claim of fact, the writer needs to produce sufficient and appropriate data — that is, examples, statistics, and testimony from reliable sources. Provided this requirement is met, the task of establishing a factual claim would seem to be relatively straightforward. But as you have probably already discovered in ordinary conversation, finding convincing support for factual claims can pose a number of problems. Whenever you try to establish a claim of fact, you will need to ask at least three questions about the material you plan to use: *What are sufficient and appropriate data? Who are the reliable authorities?* and *Have I made clear whether my statements are facts or inferences?*

Sufficient and Appropriate Data

The amount and kind of data for a particular argument depend on the importance and complexity of the subject. The more controversial the subject, the more facts and testimony you will need to supply. Consider the claim "The murder rate in New York City is lower this year than last year." If you want to prove the truth of this claim, obviously you will have to provide a larger quantity of data than for a claim that says, "By following three steps, you can train your dog to sit

⁶ *New York Times*, February 20, 1983, sec. 22, p. 4.

and heel in fifteen minutes." In examining your facts and opinions, an alert reader will want to know if they are accurate, current, and typical of other facts and opinions that you have not mentioned.

The reader will also look for testimony from more than one authority, although there may be cases where only one or two experts who have achieved a unique breakthrough in their field will be sufficient. These cases would probably occur most frequently in the physical sciences. The Nobel Prize winners James Watson and Francis Crick, who first discovered the structure of the DNA molecule, are an example of such experts. However, in the case of the so-called Hitler diaries that surfaced in 1983, at least a dozen experts — journalists, historians, bibliographers who could verify the age of the paper and the ink — were needed to establish that they were forgeries.

Reliable Authorities

Not all those who pronounce themselves experts are trustworthy. Your own experience has probably taught you that you cannot always believe the reports of an event by a single witness. The witness may be poorly trained to make accurate observations — about the size of a crowd, the speed of a vehicle, his distance from an object. Or his own physical conditions — illness, intoxication, disability — may prevent him from seeing or hearing or smelling accurately. The circumstances under which he observes the event — darkness, confusion, noise — may also impair his observation. In addition, the witness may be biased for or against the outcome of the event, as in a hotly contested baseball game, where the observer sees the play that he wants to see. You will find the problems associated with the biases of witnesses to be relevant to your work as a reader and writer of argumentative essays.

You will undoubtedly want to quote authors in some of your arguments. In most cases you will not be familiar with the authors. But there are guidelines for determining their reliability: the rank or title of the experts, the acceptance of their publications by other experts, their association with reputable universities, research centers, or think tanks. For example, for a paper on euthanasia you might decide to quote from an article by Paul Ramsey, identified as the Harrington Spear Paine Professor of Religion at Princeton University. For a paper on prison reform you might want to use material supplied by Tom Murton, a professional penologist, formerly superintendent in the Arkansas prison system, now professor of criminology at the University of Minnesota. Most readers of your arguments would agree that these authors have impressive credentials in their fields.

What if several respectable sources are in conflict? What if the experts disagree? After a preliminary investigation of a controversial subject, you may decide that you have sufficient material to support your claim. But if you read further, you may discover that other material presented by equally qualified experts contradicts your original claim. In such circumstances you will find it impossible to make a definitive claim.

Facts or Inferences

We have defined a fact as a statement that can be verified. An inference is “a statement about the unknown on the basis of the known.”⁷ The difference between facts and inferences is important to you as the writer of an argument because an inference is an *interpretation*, or an opinion reached after informed evaluation of evidence. As you and your classmates wait in your classroom on the first day of the semester, a middle-aged woman wearing a tweed jacket and a corduroy skirt appears and stands in the front of the room. You don't know who this woman is. However, based on what you do know about the appearance of many college teachers and the fact that teachers usually stand in front of the classroom, you may *infer* that this woman is your teacher. You will probably be right. But you cannot be certain until you have more information. Perhaps you will find out that this woman has come from the department office to tell you that your teacher is sick and cannot meet the class today.

⁷ S. I. Hayakawa, *Language in Thought and Action* (New York: Harcourt, Brace, Jovanovich, 1978), p. 35.

You have probably come across a statement such as the following in a newspaper or magazine: "Excessive television viewing has caused the steady decline in the reading ability of children and teenagers." Presented this way, the statement is clearly intended to be read as a factual claim that has been or can be proved. But it is an inference. The facts, which can be, and have been, verified, are (1) the reading ability of children and teenagers has declined and (2) the average child views television for six or more hours a day. (Whether this amount of time is "excessive" is also an opinion.) The cause-and-effect relation between the two facts is an interpretation of the investigator, who has examined both the reading scores and the amount of time spent in front of the television set and *inferred* that one is the cause of the other. The causes of the decline in reading scores are probably more complex than the original statement indicates. Since we can seldom or never create laboratory conditions for testing the influence of television separate from other influences in the family and the community, any statement about the connection between reading scores and television viewing can only be a guess.

By definition, no inference can ever do more than suggest probabilities. Of course, some inferences are much more reliable than others and afford a high degree of probability. Almost all claims in science are based on inferences, interpretations of data on which most scientists agree. Paleontologists find a few ancient bones from which they make inferences about an animal that might have been alive millions of years ago. We can never be absolutely certain that the reconstruction of the dinosaur in the museum is an exact copy of the animal it is supposed to represent, but the probability is fairly high because no other interpretation works so well to explain all the observable data — the existence of the bones in a particular place, their age, their relation to other fossils, and their resemblance to the bones of existing animals with which the paleontologist is familiar.

Inferences are profoundly important, and most arguments could not proceed very far without them. But an inference is not a fact. The writer of an argument must make it clear when he or she offers an inference, an interpretation, or an opinion that it is not a fact.

Defending a Claim of Fact

Here are some guidelines that should help you to defend a factual claim.

1. Be sure that the claim — what you are trying to prove — is clearly stated, preferably at the beginning of your paper.
2. Define terms that may be controversial or ambiguous. For example, in trying to prove that "radicals" had captured the student government, you would have to define "radicals," distinguishing them from "liberals" or members of other ideological groups, so that your readers would understand exactly what you meant.
3. As far as possible, make sure that your evidence — facts and opinions, or interpretations of the facts — fulfills the appropriate criteria. The data should be sufficient, accurate, recent, typical; the authorities should be reliable.
4. Make clear when conclusions about the data are inferences or interpretations, not facts. For example, you might write, "The series of lectures titled Modern Architecture, sponsored by our fraternity, was poorly attended because the students at this college aren't interested in discussions of art." What proof could you offer that this was the reason and that your statement was a *fact*? Perhaps there were other reasons that you hadn't considered.
5. Emphasize your most important evidence by placing it at the beginning or the end of your paper (the most emphatic positions in an essay) and devoting more space to it.

A NOTE ON CAUSAL ARGUMENT

Causal argument attempts to establish a relationship between two events or conditions by speculating about cause and effect. Suppose you read a report that states that more women than men are enrolled in colleges and universities. You may wonder what has caused this development or

what are and will be the consequences for society of a population in which women are better educated than men. Your essay could answer one of these questions by examining one event or condition for either its causes or its effects. In a long paper you could answer both questions. Such arguments — although we engage in them every day, both formally and informally — are more complicated than they seem and often highly controversial. For one thing, the cause of even the most ordinary event involving human behavior is not always easy to identify. Events usually have more than one cause and often have a chain of causes that began well before the immediate cause. We can often find evidence of this complexity when we ask the question "Why?" about events in our own lives. In literature, too, we see the search for meaning in a chain of events. Macbeth does not murder King Duncan only because Lady Macbeth urges him to do so. He has already heard a prophecy that he will be king; in addition, he has tasted power in his recent elevation to Thane of Cawdor. Even after we have learned about these provocations, we look for other causes in his character and his history.

Second, we cannot perform the kinds of controlled experiments in human behavior that verify causes in the physical sciences. We are told, for example, that married men live longer than unmarried men. It would be interesting and useful to know why, but the answer will probably not be found in the laboratory. For the present the causes, certainly more than one and rooted in psychology, can only be guessed.

Lastly, when two things occur in close proximity, we may leap to the conclusion that one thing is the cause of the other. Superstitions are the most familiar examples of such thinking. One book sums up the difficulty this way:

Scientists are keenly aware of how easy it is to uncover associations and how hard it is to determine whether these links are actually cause—andeffect relationships. If you select a group of people and compile data about their health, lifestyle, and environment, you could uncover hundreds of associations. You may find direct associations between shirt size and blood pressure, or body weight and ownership of Ford pickup trucks.... But few of these links would be causal.... The physical height of children increases as their lifetime total of hours spent watching television increases. Does television watching promote physical growth?⁸

Yet, despite the problems associated with isolating the causes of things both ordinary and mysterious, the importance of sound cause—and—effect reasoning can hardly be overestimated. Think how few advances medical science could make before researchers had proved that certain organisms cause disease. In the social sciences causes are much harder to find, but solutions for crime, poverty, poor education, bigotry, and dozens of other problems depend in large part on uncovering them.

Writer's Guide to the Causal Paper *Writing an Essay of Cause and Effect*

1. You can begin your argument by describing the situation and by stating both your claim and your reasons for addressing this question. We often undertake the examination of causes and effects to explain or solve a problem.
2. Make an outline or notes of the main ideas that will support your claim. In a paper of fewer than 700 words, you probably cannot follow a long chain of causes. In fact, you may discover that only one important cause or effect deserves development in a short paper.
3. Since causes are often hard to identify, you should use as many examples, studies by experts, graphs, etc. as you can accommodate to prove that there is a pattern, that the cause of some condition is not an anomaly or irregularity.
4. If your evidence shows that some causes in your outline seem stronger than others, emphasize the strong causes, and omit those for which the evidence is weak.

⁸ Theodore Schick Jr. and Lewis Vaughan, *How to Think about Weird Things* (Mountain View, Calif.: Mayfield, 1995), p. 179.

5. Be cautious in predicting that certain effects follow or will follow a particular cause or causes, and qualify your predictions. This means avoiding words like always and *never*. The past may not be a reliable guide to the future, and experts make predictions that sometimes are proved wrong.
6. When no solid evidence can be found, an educated guess can sometimes serve as a modest substitute. Educated guesses are reasonable inferences that are based on experience and common sense and are capable of proof. Analogies and comparisons to similar situations can be helpful, but remember that analogies are not proof.
7. Anticipate objections to your own explanations and predictions. If the objections are widely held, acknowledge them and try to point out their weaknesses.
8. Your essay may also rebut statements about cause and effect with which you disagree. Ideas that you oppose — for good reasons, of course — will inspire some of your most stimulating and insightful essays. In other college courses you may have acquired data that contradict conclusions about situations you are familiar with.

CLAIMS OF VALUE

Unlike claims of fact, which attempt to prove that something is true and which can be validated by reference to the data, claims of value make a judgment. They express approval or disapproval. They attempt to prove that some action, belief, or condition is right or wrong, good or bad, beautiful or ugly, worthwhile or undesirable.

CLAIM: Democracy is superior to any other form of government.

CLAIM: Killing animals for sport is wrong.

CLAIM: The Sam Rayburn Building in Washington is an aesthetic failure.

Some claims of value are simply expressions of tastes, likes and dislikes, or preferences and prejudices. The Latin proverb "De gustibus non est disputandum" states that we cannot dispute about tastes. Suppose you express a preference for chocolate over vanilla. If your listener should ask why you prefer this flavor, you cannot refer to an outside authority or produce data or appeal to her moral sense to convince her that your preference is justified.

Many claims of value, however, can be defended or attacked on the basis of standards that measure the worth of an action, a belief, or an object. As far as possible, our personal likes and dislikes should be supported by reference to these standards. Value judgments occur in any area of human experience, but whatever the area, the analysis will be the same. We ask the arguer who is defending a claim of value: *What are the standards or criteria for deciding that this action, this belief, or this object is good or bad, beautiful or ugly, desirable or undesirable? Does the thing you are defending fulfill these criteria?*

There are two general areas in which people often disagree about matters of value: aesthetics and morality. They are also the areas that offer the greatest challenge to the writer. What follows is a discussion of some of the elements of analysis that you should consider in defending a claim of value in these areas.

Aesthetics is the study of beauty and the fine arts. Controversies over works of art — the aesthetic value of books, paintings, sculpture, architecture, dance, drama, and movies — rage fiercely among experts and laypeople alike. They may disagree on the standards for judging or, even if they agree about standards, may disagree about how successfully the art object under discussion has met these standards.

Consider a discussion about popular music. Hearing someone praise the singing of a well-known vocalist, Sheila Jordan, you might ask why she is so highly regarded. You expect Jordan's fan to say more than "I like her" or "Man, she's great." You expect the fan to give reasons to support his claim. "She's unique," he says. He shows you a short review from a widely read newspaper that says, "Her singing is filled with fascinating phrasings, twists, and turns, and she's

been compared with Billie Holiday for her emotional intensity. ... She can be so heart—wrenching that conversations stop cold." Her fan agrees with the criteria for judging a singer given by the author of the review: uniqueness, fascinating phrasings, emotional intensity.

You may not agree that these are the only standards or even the significant ones for judging a singer. But the establishment of standards itself offers material for a discussion or an argument. You may argue about the relevance of the criteria, or, agreeing on the criteria, you may argue about the success of the singer in meeting them. Perhaps you prefer cool singers to intense ones. Or, even if you choose intensity over coolness, you may not think Sheila Jordan can be described as "expressive." Moreover, in any arguments about criteria, differences in experience and preparation acquire importance. You would probably take for granted that a writer with formal musical training who has listened carefully to dozens of singers over a period of years, who has read a good deal of musical criticism and discussed musical matters with other knowledgeable people would be a more reliable critic than someone who lacked these qualifications.

It is probably not surprising then, that, despite wide differences in taste, professional critics more often than not agree on criteria and whether an art object has met the criteria. For example, almost all movie critics agree that *Citizen Kane* and *Gone with the Wind* are superior films. They also agree that *Plan 9 from Outer Space*, a horror film, is terrible.

Value claims about morality express judgments about the rightness or wrongness of conduct or belief. Here disagreements are as wide and deep as in the arts. The first two examples on page 60 reveal how controversial such claims can be. Although you and your reader may share many values — among them a belief in democracy, a respect for learning, and a desire for peace — you may also disagree, even profoundly, about other values. The subject of divorce, for example, despite its prevalence in our society, can produce a conflict between people who have differing moral standards. Some people may insist on adherence to absolute standards, arguing that the values they hold are based on immutable religious precepts derived from God and biblical scripture. Since marriage is sacred, divorce is always wrong, they say, whether or not the conditions of society change. Other people may argue that values are relative, based on the changing needs of societies in different places and at different times. Since marriage is an institution created by human beings at a particular time in history to serve particular social needs, they may say, it can also be dissolved when other social needs arise. The same conflicts between moral values might occur in discussions of abortion or suicide.

As a writer you cannot always know what system of values your reader holds. Yet it might be possible to find a rule on which almost all readers agree. One such rule was expressed by the eighteenth century German philosopher Immanuel Kant: "Man and, in general, every rational being exists as an end in itself and not merely as a means to be arbitrarily used by this or that will." Kant's prescription urges us not to subject any creature to a condition that it has not freely chosen. In other words, we cannot use other creatures, as in slavery, for our own purposes. (Some philosophers would extend this rule to the treatment of animals by human beings.) This standard of judgment has, in fact, been invoked in recent years against medical experimentation on human beings in prisons and hospitals without their consent and against the sterilization of poor or mentally defective women without their knowledge of the decision.

Nevertheless, even where people agree about standards for measuring behavior, a majority preference is not enough to confer moral value. If in a certain neighborhood a majority of heterosexual men decide to harass a few gay men and lesbians, that consensus does not make their action right. In formulating value claims, you should be prepared to ask and answer questions about the way in which your value claims and those of others have been arrived at. Lionel Ruby, an American philosopher, sums it up in these words: "The law of rationality tells us that we ought to justify our beliefs by evidence and reasons, instead of asserting them dogmatically."⁹

Of course, you will not always be able to persuade those with whom you argue that your values are superior to theirs and that they should therefore change their attitudes. Nor, on the other hand, would you want to compromise your values or pretend that they were different to win an argument. What you can and should do, however, as Lionel Ruby advises, is give good reasons that you think one thing is better than another. If as a child you asked why it was wrong to take your brother's

⁹ *The Art of Making Sense* (New York: Lippincott, 1968), p. 271.

toys, you might have been told by an exasperated parent, "Because I say so." Some adults still give such answers in defending their judgments, but such answers are not arguments and do nothing to win the agreement of others,

Writer's Guide to the Evaluation Paper

Defending a Claim of Value

The following suggestions are a preliminary guide to the defense of a value claim.

1. Try to make clear that the values or principles you are defending are important and relatively more significant than other values. Keep in mind that you and your readers may differ about their relative importance. For example, although your readers may agree with you that brilliant photography is important in a film, they may think that a well-written script is even more crucial to its success. And although they may agree that freedom of the press is a mainstay of democracy, they may regard the right to privacy as even more fundamental.
2. Suggest that adherence to the values you are defending will bring about good results in some specific situation or bad results if respect for the values is ignored. You might argue, for example, that a belief in freedom of the press will make citizens better informed and the country stronger while a failure to protect this freedom will strengthen the forces of authoritarianism.
3. Since value terms are abstract, use examples and illustrations to clarify meanings and make distinctions. Comparisons and contrasts are especially helpful. If you use the term *heroism*, can you provide examples to differentiate between *heroism* and *foolhardiness* or *exhibitionism*?
4. Use testimony of others to prove that knowledgeable or highly regarded people share your values.

CLAIMS OF POLICY

Claims of policy argue that certain conditions should exist. As the name suggests, they advocate adoption of policies or courses of action because problems have arisen that call for solution. Almost always *should* or *ought to* or *must* is expressed or implied in the claim.

CLAIM: Voluntary prayer should be permitted in public schools.

CLAIM: A dress code should be introduced for all public high schools.

CLAIM: A law should permit sixteen-year-olds and parents to "divorce" each other in cases of extreme incompatibility.

CLAIM: Mandatory jail terms should be imposed for drunk driving violations.

In defending such claims of policy you may find that you must first convince your audience that a problem exists. This will require that, as part of your longer argument, you make a factual claim, offering data to prove that present conditions are unsatisfactory. You may also find it necessary to refer to the values that support your claim. Then you will be ready to introduce your policy, to persuade your audience that the solution you propose will solve the problem.

We will examine a policy claim in which all these parts are at work. The claim can be stated as follows: "The time required for an undergraduate degree should be extended to five years." Immediate agreement with this policy among student readers would certainly not be universal. Some students would not recognize a problem. They would say, "The college curriculum we have now is fine. There's no need for a change. Besides, we don't want to spend more time in school." First, then, the arguer would have to persuade a skeptical audience that there is a problem — that four years of college are no longer enough because the stock of knowledge in almost all fields of study continues to increase. The arguer would provide data to show that students today have many

more choices in history, literature, and science than students had in those fields a generation ago. She would also emphasize the value of greater knowledge and more schooling compared to the value of other goods the audience cherishes, such as earlier independence. Finally, the arguer would offer a plan for implementing her policy. Her plan would have to consider initial psychological resistance, revision of the curriculum, costs of more instruction, and costs of lost production in the workforce. Most important, she would point out the benefits for both individuals and society if this policy were adopted.

In this example, we assumed that the reader would disagree that a problem existed. In many cases, however, the reader may agree that there is a problem but disagree with the arguer about the way to solve it. Most of us, no doubt, agree that we want to reduce or eliminate the following problems: misbehavior and vandalism in schools, drunk driving, crime on the streets, child abuse, pornography, pollution. But how should we go about solving those problems? What public policy will give us well—behaved, diligent students who never destroy school property? Safe streets where no one is ever robbed or assaulted? Loving homes where no child is ever mistreated? Some members of society would choose to introduce rules or laws that punish infractions so severely that wrongdoers would be unwilling or unable to repeat their offenses. Other members of society would prefer policies that attempt to rehabilitate or reeducate offenders through training, therapy, counseling, and new opportunities.

Writer's Guide to the Proposal Paper

Defending a Claim of Policy

The following steps will help you organize arguments for a claim of policy.

1. Make your proposal clear. The terms in the proposal should be precisely defined.
2. If necessary, establish that there is a need for a change. When changes have been resisted, present reasons that explain this resistance. (It is often wrongly assumed that people cling to cultural practices long after their significance and necessity have eroded. But rational human beings observe practices that serve a purpose. The fact that you and I may see no value or purpose in the activities of another is irrelevant.)
3. Consider the opposing arguments. You may want to state the opposing arguments in a brief paragraph before answering them in the body of your argument.
4. Devote the major part of your essay to proving that your proposal is an answer to the opposing arguments and enumerating its distinct benefits for your readers.
5. Support your proposal with solid data, but don't neglect the moral considerations and the commonsense reasons, which may be even more persuasive.

Induction, Deduction, and Logical Fallacies

We have pointed out the weaknesses that cause arguments to break down. In the vast majority of cases these weaknesses represent breakdowns in logic or the reasoning process. We call such weaknesses *fallacies*, a term derived from the Latin. Sometimes these false or erroneous arguments are deliberate; in fact, the Latin word *fallere* means "to deceive." But more often these arguments are either carelessly or unintentionally constructed. Thoughtful readers learn to recognize them; thoughtful writers learn to avoid them.

The reasoning process was first given formal expression by Aristotle, the Greek philosopher, almost 2,500 years ago. In his famous treatises, he described the way we try to discover the truth — observing the world, selecting impressions, making inferences, generalizing. In this process Aristotle identified two forms of reasoning: *induction* and *deduction*. Both forms, he realized, are subject to error. Our observations may be incorrect or insufficient, and our conclusions may be faulty because they have violated the rules governing the relationship between statements. The terms we've introduced may be unfamiliar, but the processes of reasoning, as well as the fallacies that violate these processes, are not. Induction and deduction are not reserved only for formal arguments about important problems; they also represent our everyday thinking about the most ordinary matters. As for the fallacies, they, too, unfortunately, may crop up anywhere, whenever we are careless in our use of the reasoning process.

In this section we will examine some of the most common fallacies. First, however, a closer look at induction and deduction will make clear what happens when fallacies occur.

INDUCTION

Induction is the form of reasoning in which we come to conclusions about the whole on the basis of observations of particular instances. If you notice that prices on the four items you bought in the campus bookstore are higher than similar items in the bookstore in town, you may come to the conclusion that the campus store is a more expensive place to shop. If you also noticed that all three of the instructors you saw on the first day of school were wearing faded jeans and running shoes, you might say that your teachers are generally informal in their dress. In both cases you have made an *inductive leap*, reasoning from what you have learned about a few examples to what you think is true of a whole class of things.

How safe are you in coming to these conclusions? As we've noticed in discussing data and generalization warrants, the reliability of your conclusion depends on the quantity and quality of your observations. Were four items out of the thousands available in the campus store a sufficiently large sample? Would you come to the same conclusion if you chose fifty items? Might another selection have produced a different conclusion? As for the casually dressed instructors, perhaps further investigation would disclose that the teachers wearing jeans were all teaching assistants and that associate and full professors usually wore business clothes. Or the difference might lie in the academic discipline; anthropology teachers might turn out to dress less formally than business school teachers.

In these two situations, you could come closer to verifying your conclusions by further observation and experience — that is, by buying more items at both stores over a longer period of time and by coming into contact with a greater number of professors during a whole semester. Even

without pricing every item in both stores or encountering every instructor on campus, you would be more confident of your generalization as the quality and quantity of your samples increased.

In some cases you can observe all the instances in a particular situation. For example, by acquiring information about the religious beliefs of all the residents of the dormitory, you can arrive at an accurate assessment of the number of Buddhists. But since our ability to make definitive observations about everything is limited, we must also make an inductive leap about categories of things that we ourselves can never encounter in their entirety. For some generalizations, as we have learned about evidence, we rely on the testimony of reliable witnesses who report that they have experienced or observed many more instances of the phenomenon. A television documentary may give us information about unwed teenage mothers in a city neighborhood; four girls are interviewed and followed for several days by the reporter. Are these girls typical of thousands of others? A sociologist on the program assures us that, in fact, they are. She herself has consulted with hundreds of other young mothers and can vouch for the fact that a conclusion about them, based on our observation of the four, will be sound. Obviously, though, our conclusion can only be probable, not certain. The sociologist's sample is large, but she can account only for hundreds, not thousands, and there may be unexamined cases that will seriously weaken our conclusions.

In other cases, we may rely on a principle known in science as "the uniformity of nature." We assume that certain conclusions about oak trees in the temperate zone of North America, for example, will also be true for oak trees growing elsewhere under similar climatic conditions. We also use this principle in attempting to explain the causes of behavior in human beings. If we discover that institutionalization of some children from infancy results in severe emotional retardation, we think it safe to conclude that under the same circumstances all children would suffer the same consequences. As in the previous example, we are aware that certainty about every case of institutionalization is impossible. With rare exceptions, the process of induction can offer only probability, not certain truth.

DEDUCTION

While induction attempts to arrive at the truth, deduction guarantees sound relationships between statements. If each of a series of statements, called *premises*, is true, deductive logic tells us that the conclusion must also be true. Unlike the conclusions from induction, which are only probable, the conclusions from deduction are certain. The simplest deductive argument consists of two premises and a conclusion. In outline such an argument looks like this:

MAJOR PREMISE: All students with 3.5 averages and above for three years are invited to become members of Kappa Gamma Pi, the honor society.

MINOR PREMISE: George has had a 3.8 average for over three years.

CONCLUSION: Therefore, he will be invited to join Kappa Gamma Pi.

This deductive conclusion is *valid* or logically consistent because it follows necessarily from the premises. No other conclusion is possible. Validity, however, refers only to the form of the argument. The argument itself may not be satisfactory if the premises are not true — if Kappa Gamma Pi has imposed other conditions or if George has only a 3.4 average. The difference between truth and validity is important because it alerts us to the necessity for examining the truth of the premises before we decide that the conclusion is sound.

One way of discovering how the deductive process works is to look at the methods used by Sherlock Holmes, that most famous of literary detectives, in solving his mysteries. His reasoning process follows a familiar pattern. Through the inductive process — that is, observing the particulars of the world — he came to certain conclusions about those particulars. Then he applied deductive reasoning to come to a conclusion about a particular person or event.

On one occasion Holmes observed that a man sitting opposite him on a train had chalk dust on his fingers. From this observation Holmes deduced that the man was a schoolteacher. If his thinking were outlined, it would take the form of the syllogism, the classic form of deductive reasoning:

MAJOR PREMISE: All men with chalk dust on their fingers are schoolteachers.

MINOR PREMISE: This man has chalk dust on his fingers.

CONCLUSION: Therefore, this man is a schoolteacher.

One dictionary defines *syllogism* as "a formula of argument consisting of three propositions." The first proposition is called the major premise and offers a generalization about a large group or class. This generalization has been arrived at through inductive reasoning or observation of particulars. The second proposition is called the minor premise, and it makes a statement about a member of that group or class. The third proposition is the conclusion, which links the other two propositions, in much the same way that the warrant links the support and the claim.

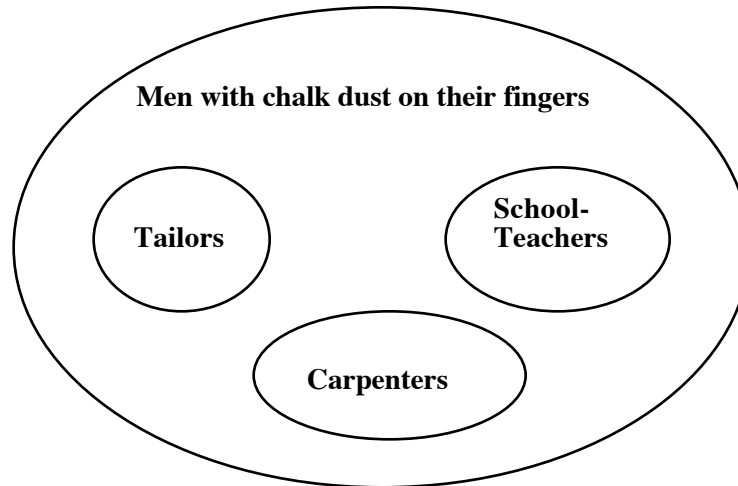
If we look back at the syllogism that summarizes Holmes's thinking, we see how it represents the deductive process. The major premise, the first statement, is an inductive generalization, a statement arrived at after observation of a number of men with chalk on their fingers. The minor premise, the second statement, assigns a particular member, the man on the train, to the general class of those who have dust on their fingers.

But although the argument may be logical, it is faulty. The deductive argument is only as strong as its premises. As Lionel Ruby pointed out, Sherlock Holmes was often wrong.¹⁰ Holmes once deduced from the size of a large hat found in the street that the owner was intelligent. He obviously believed that a large head meant a large brain and that a large brain indicated intelligence. Had he lived one hundred years later, new information about the relationship of brain size to intelligence would have enabled him to come to a different and better conclusion.

In this case, we might first object to the major premise, the generalization that all men with chalk dust on their fingers are schoolteachers. Is it true? Perhaps all the men with dusty fingers whom Holmes had so far observed had turned out to be schoolteachers, but was his sample sufficiently large to allow him to conclude that all dustfingereed men, even those with whom he might never have contact, were teachers? Were there no other vocations or situations that might require the use of chalk? Draftsmen or carpenters or tailors or artists might have fingers just as white as those of schoolteachers. In other words, Holmes may have ascertained that all schoolteachers have chalk dust on their fingers, but he had not determined that only schoolteachers can be thus identified. Sometimes it is helpful to draw circles representing the various groups in their relation to the whole.

If a large circle (see the figure below) represents all those who have chalk dust on their fingers, we see that several different groups may be contained in this universe. To be safe, Holmes should have deduced that the man on the train might have been a schoolteacher; he was not safe in deducing more than that. Obviously, if the inductive generalization or major premise is false, the conclusion of the particular argument is also false or invalid.

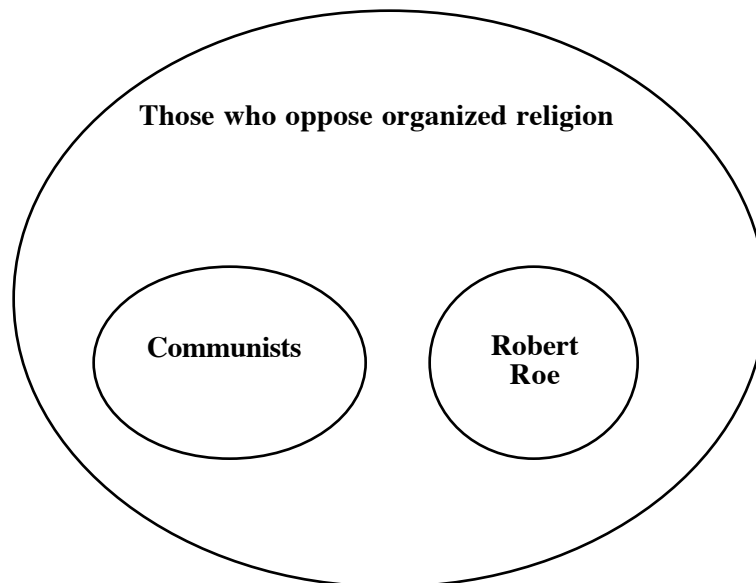
¹⁰ *The Art of Making Sense* (Philadelphia: Lippincott, 1954), ch. 17.



The deductive argument may also go wrong elsewhere. What if the minor premise is untrue? Could Holmes have mistaken the source of the white powder on the man's fingers? Suppose it was not chalk dust but flour or confectioner's sugar or talcum or heroin? Any of these possibilities would weaken or invalidate his conclusion.

Another example, closer to the kinds of arguments you will examine, reveals the flaw in the deductive process.

MAJOR PREMISE: All Communists oppose organized religion.



MINOR PREMISE: Robert Roe opposes organized religion.

CONCLUSION: Therefore, Robert Roe is a Communist.

The common name for this fallacy is "guilt by association." The fact that two things share an attribute does not mean that they are the same thing. As in the first example, the diagram above

makes clear that Robert Roe and Communists do not necessarily share all attributes. Remembering that Holmes may have misinterpreted the signs of chalk on the traveler's fingers, we may also want to question whether Robert Roe's opposition to organized religion has been misinterpreted.

An example from history shows us how such an argument may be used. In a campaign speech during the summer of 1952, Senator Joseph McCarthy, who had made a reputation as a tireless enemy of communism, said, "I do not tell you that Schlesinger, Stevenson's number one man, number one braintrust, I don't tell you he's a Communist. I have no information on that point. But I do know that if he were a Communist he would also ridicule religion as Schlesinger has done."¹¹ This is an argument based on a sign warrant. Clearly the sign referred to by Senator McCarthy, ridicule of religion, would not be sufficient to characterize someone as a Communist.

Some deductive arguments give trouble because one of the premises, usually the major premise, is omitted. A failure to evaluate the truth of the unexpressed premise may lead to an invalid conclusion. When only two parts of the syllogism appear, we call the resulting form an *enthymeme*. Suppose we overhear the following snatch of conversation:

"Did you hear about Jean's father? He had a heart attack last week. "

"That's too bad. But I'm not surprised. I know he always refused to go for his annual physical checkups. "

The second speaker has used an unexpressed major premise, the cause—and—effect warrant "If you have annual physical checkups, you can avoid heart attacks." He does not express it because he assumes that it is unnecessary to do so. The first speaker recognizes the unspoken warrant and may agree with it. Or the first speaker may produce evidence from reputable sources that such a generalization is by no means universally true, in which case the conclusion of the second speaker is suspect.

A knowledge of the deductive process can help guide you toward an evaluation of the soundness of your reasoning in an argument you are constructing. The syllogism is often clearer than an outline in establishing the relations between the different parts of an argument.

Suppose you wanted to argue that your former high school should introduce a dress code. You might begin by asking these questions: What would be the purpose of such a regulation? How would a dress code fulfill that purpose? What reasons could you provide to support your claim?

Then you might set down part of your argument like this:

Dressing in different styles makes students more aware of social differences among themselves.

The students in this school dress in many different styles.

Therefore, they are more aware of differences in social status among the student body.

As you diagram this first part of the argument, you should ask two sets of questions:

1. Is the major premise true? Do differences in dress cause awareness of differences in social status? Has my experience confirmed this?
2. Is the minor premise true? Has my observation confirmed this?

The conclusion, of course, represents something that you don't have to observe. You can deduce with certainty that it is true if both the major and minor premises are true.

So far the testing of your argument has been relatively easy because you have been concerned with the testing of observation and experience. Now you must examine something that does not appear in the syllogism. You have determined certain facts about perceptions of social status, but you have not arrived at the policy you want to recommend: that a dress code should be mandated. Notice that the dress code argument is based on acceptance of a moral value.

¹¹ Joseph R. McCarthy, "The Red-Tinted Washington Crowd," speech delivered to a Republican campaign meeting at Appleton, Wisconsin, November 3, 1952.

Reducing awareness of social differences is a desirable goal for the school.

A uniform dress code would help to achieve that goal.

Therefore, students should be required to dress uniformly.

The major premise in this syllogism is clearly different from the previous one. While the premise in the previous syllogism can be tested by examining sufficient examples to determine probability, this statement, about the desirability of the goal, is a value judgment and cannot be proved by counting examples. Whether equality of social status is a desirable goal depends on an appeal to other, more basic values.

Setting down your own or someone else's argument in this form will not necessarily give you the answers to questions about how to support your claim, but it should clearly indicate what your claims are and, above all, what logical connections exist between your statements.

A NOTE ON THE SYLLOGISM AND THE TOULMIN MODEL

In examining the classical deductive syllogism, you may have noticed the resemblance of its three-part outline to the three-part structure of claim, support, and warrant that we have used throughout the text to illustrate the elements of argument. We mentioned that the syllogism was articulated over two thousand years ago by the Greek philosopher Aristotle. By contrast, the claim-support-warrant structure is based on the model of argument proposed by the modern British philosopher Stephen Toulmin.

Now, there is every reason to think that all models of argument will share some similarities. Nevertheless, the differences between the formal syllogism and the informal Toulmin model suggest that the latter is a more effective instrument for writers who want to know which questions to ask, both before they begin and during the process of developing their arguments.

The syllogism is useful for laying out the basic elements of an argument, as we have seen in several examples. It lends itself more readily to simple arguments. The following syllogism summarizes a familiar argument.

MAJOR PREMISE: Advertising of things harmful to our health should be legally banned.

MINOR PREMISE: Cigarettes are harmful to our health.

CONCLUSION: Therefore, advertising of cigarettes should be legally banned.

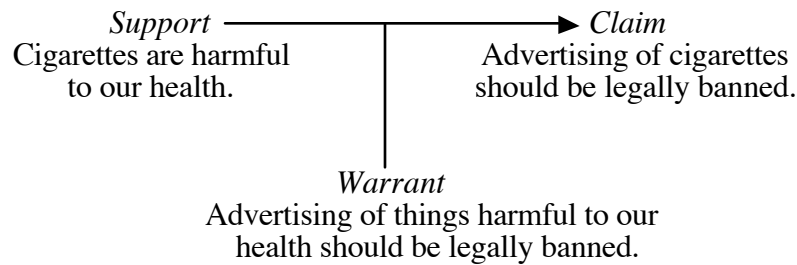
Cast in the form of a Toulmin outline, the argument looks like this:

CLAIM: Advertising of cigarettes should be legally banned.

SUPPORT (EVIDENCE): Cigarettes are harmful to our health.

WARRANT: Advertising of things harmful to our health should be legally banned.

or in diagram form:



In both the syllogism and the Toulmin model the principal elements of the argument are expressed in three statements. You can see that the claim in the Toulmin model is the conclusion in the syllogism — that is, the proposition that you are trying to prove. The evidence (support) in the Toulmin model corresponds to the minor premise in the syllogism. And the warrant in the Toulmin model resembles the major premise of the syllogism.

But the differences are significant. One difference is the use of language. The syllogism represents an argument "in which the validity of the assumption underlying the inference 'leap' is uncontested."¹² That is, the words "major premise" seem to suggest that the assumption has been proved. They do not emphasize that an analysis of the premise — "Advertising of things harmful to our health should be legally banned" — is necessary before we can decide that the conclusion is acceptable. Of course, a careful arguer will try to establish the truth and validity of all parts of the syllogism, but the terms in which the syllogism is framed do not encourage him or her to examine the real relationship among the three elements. Sometimes the enthymeme, which uses only two elements in the argument and suppresses the third, makes analyzing the relationship even more difficult.

In the Toulmin model, the use of the term *warrant* indicates that the validity of the proposition must be established to *guarantee* the claim or make the crossing from support to claim. It makes clear that the arguer must ask *why* such advertising must be banned.

Nor is the term *minor premise* as useful to the arguer as "support." The word support instructs the arguer that he or she must take steps to provide the claim with factual evidence or an appeal to values.

A second difference is that while the syllogism is essentially static, with all three parts logically locked into place, the Toulmin model suggests that an argument is a *movement* from support to claim by way of the warrant, which acts as a bridge. Toulmin introduced the concept of warrant by asking "How do you get there?" (His first two questions, introducing the claim and support, were, "What are you trying to prove?" and "What have you got to go on?")

Lastly, recall that in addition to the three basic elements, the Toulmin model offers supplementary elements of argument. The *qualifier*, in the form of words like "probably" or "more likely," shows that the claim is not absolute. The *backing* offers support for the validity of the warrant. The *reservation* suggests that the validity of the warrant may be limited. These additional elements, which refine and expand the argument itself, reflect the real flexibility and complexity of the argumentative process.

¹² Wayne E. Brockenreide and Douglas Ehringer, "Toulmin on Argument: An Interpretation and Application," *Contemporary Theories of Rhetoric: Selected Readings*, ed. Richard L. Johannesen (New York: Harper and Row, 1971), p. 245. This comparative analysis is indebted to Brockenreide and Ehringer's influential article.

COMMON FALLACIES

In this necessarily brief review it would be impossible to discuss all the fallacies listed by logicians, but we can examine the ones most likely to be found in the arguments you will read and write. Fallacies are difficult to classify, first, because there are literally dozens of systems for classifying, and second, because under any system there is always a good deal of overlap. Our discussion of the reasoning process, however, tells us where faulty reasoning occurs.

Inductive fallacies, as we know, result from the wrong use of evidence: That is, the arguer leaps to a conclusion on the basis of an insufficient sample, ignoring evidence that might have altered his or her conclusion. Deductive fallacies, on the other hand, result from a failure to follow the logic of a series of statements. Here the arguer neglects to make a clear connection between the parts of his or her argument. One of the commonest strategies is the introduction of an irrelevant issue, one that has little or no direct bearing on the development of the claim and serves only to distract the reader.

It's helpful to remember that, even if you cannot name the particular fallacy, you can learn to recognize it and not only refute it in the arguments of others but avoid it in your own as well.

1. Hasty Generalization

We discussed the dangers in drawing conclusions on the basis of insufficient evidence. Many of our prejudices are a result of hasty generalization. A prejudice is literally a judgment made before the facts are in. On the basis of experience with two or three members of an ethnic group, for example, we may form the prejudice that all members of the group share the characteristics that we have attributed to the two or three in our experience.

Superstitions are also based in part on hasty generalization. As a result of a very small number of experiences with black cats, broken mirrors, Friday the thirteenth, or spilled salt, some people will assume a cause—and—effect relation between these signs and misfortunes. *Superstition* has been defined as "a notion maintained despite evidence to the contrary." The evidence would certainly show that, contrary to the superstitious belief, in a lifetime hundreds of such "unlucky" signs are not followed by unfortunate events. To generalize about a connection is therefore unjustified.

2. Faulty Use of Authority

Faulty use of authority is the attempt to bolster claims by citing the opinions of experts. Both writers and readers need to be especially aware of the testimony of authorities who may disagree with those cited. In circumstances where experts disagree, you are encouraged to undertake a careful evaluation and comparison of credentials.

3. Post Hoc or Doubtful Cause

The entire Latin term for this fallacy is *post hoc, ergo propter hoc*, meaning, "After this, therefore because of this." The arguer infers that because one event follows another event, the first event must be the cause of the second. But proximity of events or conditions does not guarantee a causal relation. The rooster crows every morning at 5:00 and, seeing the sun rise immediately after, decides that his crowing has caused the sun to rise. A month after A—bomb tests are concluded, tornadoes damage the area where the tests were held, and residents decide that the tests caused the tornadoes. After the school principal suspends daily prayers in the classroom, acts of vandalism increase, and some parents are convinced that failure to conduct prayer is responsible for the rise in vandalism. In each of these cases, the fact that one event follows another does not prove a causal connection. The two events may be coincidental, or the first event may be only one, and an insignificant one, of many causes that have produced the second event. The reader or writer of causal arguments must determine whether another more plausible explanation exists and whether several causes have combined to produce the effect. Perhaps the suspension of prayer was only one

of a number of related causes: a decline in disciplinary action, a relaxation of academic standards, a change in school administration, and changes in family structure in the school community.

In the previous section we saw that superstitions are the result not only of hasty generalization but also of the willingness to find a cause-and-effect connection in the juxtaposition of two events. A belief in astrological signs also derives from erroneous inferences about cause and effect. Only a very few of the millions of people who consult the astrology charts every day in newspapers and magazines have submitted the predictions to statistical analysis. A curious reader might try this strategy: Save the columns, usually at the beginning or end of the year, in which astrologers and clairvoyants make predictions for events in the coming year, allegedly based on their reading of the stars and other signs. At the end of the year evaluate the percentage of predictions that were fulfilled. The number will be very small. But even if some of the predictions prove true, there may be other less fanciful explanations for their accuracy.

In defending simple explanations against complex ones, philosophers and scientists often refer to a maxim called *Occam's razor*, a principle of the medieval philosopher and theologian William of Occam. A modern science writer says this principle “urges a preference for the simplest hypothesis that does all we want it to do.”¹³ Bertrand Russell, the twentieth-century British philosopher, explained it this way:

It is vain to do with more what can be done with fewer. That is to say, if everything in some science can be interpreted without assuming this or that hypothetical entity, there is no ground for assuming it. I have myself found this a most fruitful principle in logical analysis.¹⁴

In other words, choose the simpler, more credible explanation wherever possible.

We all share the belief that scientific experimentation and research can answer questions about a wide range of natural and social phenomena: evolutionary development, hurricanes, disease, crime, poverty. It is true that repeated experiments in controlled situations can establish what seem to be solid relations suggesting cause and effect. But even scientists prefer to talk not about cause but about an extremely high probability that under controlled conditions one event will follow another.

In the social sciences cause-and-effect relations are especially susceptible to challenge. Human experiences can seldom be subjected to laboratory conditions. In addition, the complexity of the social environment makes it difficult, even impossible, to extract one cause from among the many that influence human behavior.

4. False Analogy

Many analogies are merely descriptive and offer no proof of the connection between the two things being compared. In recent years a debate has emerged between weight-loss professionals about the wisdom of urging overweight people to lose weight for health reasons. Susan Wooley, director of the eating disorders clinic at the University of Cincinnati and a professor of psychiatry, offered the following analogy in defense of her view that dieting is dangerous.

We know that overweight people have a higher mortality rate than thin people. We also know that black people have a higher mortality rate than white people. Do we subject black people to torturous treatments to bleach their skin? Of course not. We have enough sense to know skinbleaching will not eliminate sickle-cell anemia. So why do we have blind faith that weight loss will cure the diseases associated with obesity?¹⁵

¹³ Martin Gardner, *The Whys of a Philosophical Scrivener* (New York: Quill, 1983), p. 174.

¹⁴ *Dictionary of Mind, Matter and Morals* (New York: Philosophical Library, 1952), p. 166.

¹⁵ *New York Times*, April 12, 1992, sec. C, p. 43.

But it is clear that the false analogy between black skin and excessive weight does not work. The color of one's skin does not cause sickle-cell anemia, but there is an abundance of proof that excess weight influences mortality.

Historians are fond of using analogical arguments to demonstrate that particular circumstances prevailing in the past are being reproduced in the present. They therefore feel safe in predicting that the present course of history will follow that of the past. British historian Arnold Toynbee argues by analogy that humans' tenure on earth may be limited.

On the evidence of the past history of life on this planet, even the extinction of the human race is not entirely unlikely. After all, the reign of man on the Earth, if we are right in thinking that man established his present ascendancy in the middle paleolithic age, is so far only about 100,000 years old, and what is that compared to the 500 million or 900 million years during which life has been in existence on the surface of this planet? In the past, other forms of life have enjoyed reigns which have lasted for almost inconceivably longer periods — and which yet at last have come to an end.¹⁶

Toynbee finds similarities between the limited reigns of other animal species and the possible disappearance of the human race. For this analogy, however, we need to ask whether the conditions of the past, so far as we know them, at all resemble the conditions under which human existence on earth might be terminated. Is the fact that human beings are also members of the animal kingdom sufficient support for this comparison?

5. Ad Hominem

The Latin term *ad hominem* means "against the man" and refers to an attack on the person rather than on the argument or the issue. The assumption in such a fallacy is that if the speaker proves to be unacceptable in some way, his or her statements must also be judged unacceptable. Attacking the author of the statement is a strategy of diversion that prevents the reader from giving attention where it is due — to the issue under discussion.

You might hear someone complain, "What can the priest tell us about marriage? He's never been married himself." This ad hominem accusation ignores the validity of the advice the priest might offer. In the same way an overweight patient might reject the advice on diet by an overweight physician. In politics it is not uncommon for antagonists to attack each other for personal characteristics that may not be relevant to the tasks they will be elected to perform. They may be accused of infidelity to their partners, homosexuality, atheism, or a flamboyant social life. Even if certain accusations should be proved true, voters should not ignore the substance of what politicians do and say in their public offices.

This confusion of private life with professional record also exists in literature and the other arts. According to their biographers, the American writers Thomas Wolfe, Robert Frost, and William Saroyan — to name only a few — and numbers of film stars, including Charlie Chaplin, Joan Crawford, and Bing Crosby, made life miserable for those closest to them. Having read about their unpleasant personal characteristics, some people find it hard to separate the artist from his or her creation, although the personality and character of the artist are often irrelevant to the content of the work.

Ad hominem accusations against the person do not constitute a fallacy if the characteristics under attack are relevant to the argument. If the politician is irresponsible and dishonest in the conduct of his or her personal life, we may be justified in thinking that the person will also behave irresponsibly and dishonestly in public office.

¹⁶ *Civilization on Trial* (New York: Oxford University Press, 1948), pp. 162-163.

6. False Dilemma

As the name tells us, the false dilemma, sometimes called the *black-white fallacy*, poses an either-or situation. The arguer suggests that only two alternatives exist, although there may be other explanations of or solutions to the problem under discussion. The false dilemma reflects the simplification of a complex problem. Sometimes it is offered out of ignorance or laziness, sometimes to divert attention from the real explanation or solution that the arguer rejects for doubtful reasons.

You may encounter the either—or situation in dilemmas about personal choices. "At the University of Georgia," says one writer, "the measure of a man was football. You either played it or worshiped those who did, and there was no middle ground."¹⁷ Clearly this dilemma — "Love football or you're not a man" — ignores other measures of manhood.

Politics and government offer a wealth of examples. In an interview with the *New York Times* in 1975, the Shah of Iran was asked why he could not introduce into his authoritarian regime greater freedom for his subjects. His reply was, "What's wrong with authority? Is anarchy better?" Apparently he considered that only two paths were open to him — authoritarianism or anarchy. Of course, democracy was also an option, which, perhaps fatally, he declined to consider.

7. Slippery Slope

If an arguer predicts that taking a first step will lead inevitably to a second, usually undesirable step, he or she must provide evidence that this will happen. Otherwise, the arguer is guilty of a slippery slope fallacy.

Asked by an inquiring photographer on the street how he felt about censorship of a pornographic magazine, a man replied, "I don't think any publication should be banned. It's a slippery slope when you start making decisions on what people should be permitted to read.... It's a dangerous precedent." Perhaps. But if questioned further, the man should have offered evidence that a ban on some things leads inevitably to a ban on everything.

Predictions based on the danger inherent in taking the first step are commonplace:

Legalization of abortion will lead to murder of the old and the physically and mentally handicapped.

The Connecticut law allowing sixteen-year-olds and their parents to divorce each other *will* mean the death of the family.

If we ban handguns, we will end up banning rifles and other hunting weapons.

Distinguishing between probable and improbable predictions — that is, recognizing the slippery-slope fallacy — poses special problems because only future developments can verify or refute predictions. For example, in 1941 the imposition of military conscription aroused some opponents to predict that the draft was a precursor of fascism in this country. Only after the war, when 10 million draftees were demobilized, did it become clear that the draft had been an insufficient sign for a prediction of fascism. In this case the slippery—slope prediction of fascism might have been avoided if closer attention had been paid to other influences pointing to the strength of democracy.

Slippery-slope predictions are simplistic. They ignore not only the dissimilarities between first and last steps but also the complexity of the developments in any long chain of events.

¹⁷ Phil Gailey, "A Nonsports Fan," *New York Times Magazine*, December 18, 1983, sec. 6, p. 96.

8. Begging the Question

If the writer makes a statement that assumes that the very question being argued has already been proved, the writer is guilty of begging the question. In a letter to the editor of a college newspaper protesting the failure of the majority of students to meet the writing requirement because they had failed an exemption test, the writer said, "Not exempting all students who honestly qualify for exemption is an insult." But whether the students are honestly qualified is precisely the question that the exemption test was supposed to resolve. The writer has not proved that the students who failed the writing test were qualified for exemption. She has only made an assertion *as if* she had already proved it.

In an effort to raise standards of teaching, some politicians and educators have urged that master teachers be awarded higher salaries. Opponents have argued that such a proposal begs the question because it assumes that the term *master teachers* can be or has already been defined.

Circular reasoning is an extreme example of begging the question: "Women should not be permitted to join men's clubs because the clubs are for men only." The question to be resolved first, of course, is whether clubs for men only should continue to exist.

9. Straw Man

The straw-man fallacy consists of an attack on a view similar to but not the same as the one your opponent holds. It is a familiar diversionary tactic. The name probably derives from an old game in which a straw man was set up to divert attention from the real target that a contestant was supposed to knock down.

One of the outstanding examples of the straw man fallacy occurred in the famous Checkers speech of Senator Richard Nixon. In 1952 during his vice-presidential campaign, Nixon was accused of having appropriated \$18,000 in campaign funds for his personal use. At one point in the radio and television speech in which he defended his reputation, he said:

One other thing I probably should tell you, because if I don't they will probably be saying this about me, too. We did get something, a gift, after the election.

A man down in Texas heard Pat on the radio mention the fact that our two youngsters would like to have a dog, and, believe it or not, the day before we left on this campaign trip we got a message from Union Station in Baltimore saying they had a package for us. We went down to get it. You know what it was?

It was a little cocker spaniel dog, in a crate that he had sent all the way from Texas, black and white, spotted, and our little girl, Tricia, the six-year-old, named it Checkers.

And, you know, the kids, like all kids, loved the dog, and I just want to say this, right now, that regardless of what they say about it, we are going to keep it.¹⁸

Of course, Nixon knew that the issue was the alleged misappropriation of funds, not the ownership of the dog, which no one had asked him to return.

10. Two Wrongs Make a Right

The two-wrongs-make-a-right fallacy is another example of the way in which attention may be diverted from the question at issue.

¹⁸ Radio and television address of Senator Nixon from Los Angeles on September 23, 1952.

After President Jimmy Carter in March 1977 attacked the human rights record of the Soviet Union, Russian officials responded:

As for the present state of human rights in the United States, it is characterized by the following facts: millions of unemployed, racial discrimination, social inequality of women, infringement of citizens' personal freedom, the growth of crime, and so on.¹⁹

The Russians made no attempt to deny the failure of *their* human rights record; instead they attacked by pointing out that the Americans are not blameless either.

11. Non Sequitur

The Latin term *non sequitur*, which means "it does not follow," is another fallacy of irrelevance. An advertisement for a book, *Worlds in Collision*, whose theories about the origin of the earth and evolutionary development have been challenged by almost all reputable scientists, states:

Once rejected as "preposterous"! Critics called it an outrage! It aroused incredible antagonism in scientific and literary circles. Yet half a million copies were sold and for twenty-seven years it remained an outstanding bestseller.

We know, of course, that the popularity of a book does not bestow scientific respectability. The number of sales, therefore, is irrelevant to proof of the book's theoretical soundness — a non sequitur.

12. Ad Populum

Arguers guilty of the *ad populum* fallacy make an appeal to the prejudices of the people (*populum* in Latin). They assume that their claim can be adequately defended without further support if they emphasize a belief or attitude that the audience shares with them. One common form of *ad populum* is an appeal to patriotism, which may allow arguers to omit evidence that the audience needs for proper evaluation of the claim. In the following advertisement the makers of Zippo lighters made such an appeal in urging readers to buy their product.

It's a grand old lighter. Zippo — the grand old lighter that's made right here in the good old U.S.A.

We truly make an all-American product. The raw materials used in making a Zippo lighter are all right from this great land of ours.

Zippo windproof lighters are proud to be Americans.

13. Appeal to Tradition

In making an appeal to tradition, the arguer assumes that what has existed for a long time and has therefore become a tradition should continue to exist *because* it is a tradition. If the arguer avoids telling his or her reader why the tradition should be preserved, he or she may be accused of failing to meet the real issue.

The following statement appeared in a letter defending the membership policy of the Century Club, an all—male club established in New York City in 1847 that was under pressure admit women. The writer was a Presbyterian minister who opposed the admission of women. to

¹⁹ *New York Times*, March 3, 1977, p. 1.

I am totally opposed to a proposal which would radically change the nature of the Century.... A club creates an ethos of its own over the years, and I would deeply deplore a step that would inevitably create an entirely different kind of place.

A club like the Century should surely be unaffected by fashionable whims²⁰

14. Faulty Emotional Appeals

In some discussions of fallacies, appeals to the emotions of the audience are treated as illegitimate or "counterfeit proofs." All such appeals, however, are not illegitimate. As we saw in Chapter 5 on support, appeals to the values and emotions of an audience are an appropriate form of persuasion. You can recognize fallacious emotional appeals if (1) they are irrelevant to the argument or draw attention from the issues being argued or (2) they appear to conceal another purpose. Here we treat two of the most popular appeals — to pity and to fear.

Appeals to pity, compassion, and natural willingness to help the unfortunate are particularly hard to resist. The requests for aid by most charitable organizations — for hungry children, victims of disaster, stray animals — offer examples of legitimate appeals. But these appeals to our sympathetic feelings should not divert us from considering other issues in a particular case. It would be wrong, for example, to allow a multiple murderer to escape punishment because he or she had experienced a wretched childhood. Likewise, if you are asked to contribute to a charitable cause, you should try to learn how many unfortunate people or animals are being helped and what percentage of the contribution will be allocated to maintaining the organization and its officers. In some cases the financial records are closed to public review, and only a small share of the contribution will reach the alleged beneficiaries.

Appeals to fear are likely to be even more effective. But they must be based on evidence that fear is an appropriate response to the issues and that it can move an audience toward a solution to the problem. (Fear can also have the adverse effect of preventing people from taking a necessary action.) Insurance companies, for example, make appeals to our fears of destitution for ourselves and our families as a result of injury, unemployment, sickness, and death. These appeals are justified if the possibilities of such destitution are real and if the insurance will provide relief. It would also be legitimate to arouse fear of the consequences of drunk driving, provided, again, that the descriptions were accurate. On the other hand, it would be wrong to induce fear that fluoridation of public water supplies causes cancer without presenting sound evidence of the probability. It would also be wrong to instill a fear of school integration unless convincing proof were offered of undesirable social consequences.

An emotional response by itself is not always the soundest basis for making decisions. Your own experience has probably taught you that in the grip of a strong emotion like love or hate or anger you often overlook good reasons for making different and better choices. Like you, your readers want to be given the opportunity to consider all the available kinds of support for an argument.

²⁰ David H. C. Read, letter to the *New York Times*, January 13, 1983, p. 14.