

Argument in Academic Writing Some Essential Concepts

Academic writing involves two interacting processes: argument and inquiry. The kinds of argument and means of inquiry vary considerably from field to field, but with some practice they are identifiable. To succeed in most college writing, students need to understand and participate in some of the conversations that are going on in every academic and professional field. In short, you need to be able to recognize and evaluate arguments, make successful inquiries, and finally make arguments of your own.

THREE APPEALS IN ARGUMENT: ETHOS, PATHOS, LOGOS

One useful way of looking at argument was first described by Aristotle in the fourth century B.C.E. Aristotle examines three aspects of argument, otherwise known as appeals: *logos* (the appeal to reason), *pathos* (the appeal to the reader's emotions), and *ethos* (the appeal to the writer's character). *Logos* involves evidence from the material, external world and reasonable ways of deriving conclusions about this evidence. *Pathos* involves appealing to and making an impact on the audience. *Ethos* involves the self-representation of the speaker or writer, how he or she establishes and maintains credibility, authority, and expertise. Aristotle would have preferred that all arguments be merely logical, but he admitted that given the frailty of humankind, *pathos* and *ethos* are effective and necessary strategies. Contemporary *rhetoricians* (people who study how arguments are made) are interested in how these appeals interact with each other. In different disciplines, *logos*, *pathos*, and *ethos* are applied differently, but all arguments can be considered in terms of the presence and nature of these three appeals—or their absence.

In academic writing, an acceptable argument is neither an opportunity to vent personal animosity nor a mere statement of personal opinion or preference. To maintain an acceptable, credible *ethos*, researchers normally need to demonstrate knowledge of their field and to relate new knowledge to what is already known in a way that seems reasonable. They expect their work to be evaluated by a knowledgeable and critical audience. For example, the excerpt below from biologist Jacob Bronowski's review of

James Watson's account of the discovery of DNA illustrates how scientists evaluate each other's work in an atmosphere of respectful mutual criticism and argument and how, while doing their best to interpret accurately what they see in their observations or experiments, they always leave room for doubt:

[The book] will bring home to the nonscientist how the scientific method really works: that we *invent* a model and then *test* its consequences, and that it is this conjunction of imagination and realism that constitutes the inductive method. The models in science are not always as concrete as those which Crick and Watson put together with their hands; Albert Einstein could not have made a visible model of his space-time; and yet space-time *is* a model, and so is every discovery, and it takes its power from the closeness with which the consequences that flow from it match the real world.

Building models with one's hands is an engaging task, during which the builder becomes attached to his model and is tempted to gloss over its faults. Since most models are wrong and have to be discarded, however attractive they seem, it is therefore helpful to have two people at work, so that each may be ruthless with the other. This is a point that Francis Crick has made and it comes out firmly in this book—the progress of science depends on criticism. This is why there are no scientific critics in the sense that there are literary critics in their own right. Criticism is a necessary and positive function in science, but it has no independent status; and if you cannot make and take it without anger, then . . . you are out of place in the world of change that science creates and inhabits. (381–82)

However, even though scientists work in a professional world of controversy and contention, they do not usually rely heavily on pathos, and so direct appeals to the readers' emotions seem out of place in their academic writing. Ethos is maintained by a detached professional voice and clear articulation of the research method and the means by which data are analyzed.

In most other fields as well, researchers consider logical argumentation to be the primary way professionals interpret information and exchange knowledge, and they expect an academic argument to offer an informed thesis, to be supported by credible evidence, and to be presented with "good reasoning." In general, in making a good argument, a researcher

- draws conclusions warranted by the evidence;¹
- takes into account the evidence and arguments against his or her own position, refuting the alternatives or modifying the claim accordingly;
- uses evidence honestly;
- manages ethos and pathos appropriately for the discipline and the purpose;
- and avoids the major logical fallacies that come from over-generalizing, assuming that an exceptional case is typical, and appealing excessively to personalities and emotions.

None of these aspects of argument exists in isolation because they are rooted in the expectations of particular fields and in the specific purpose of a particular piece of

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writing. Academic writers are very careful in constructing arguments because they expect knowledgeable fellow researchers in their field to read and evaluate their research. Part of the process of *peer review*, a concept described by Jacob Bronowski in the previous passage, and which will be discussed more fully in Chapter 2, is the attempt by colleagues to find problems with each other's arguments, particularly gaps in the evidence (methodological problems) and lapses in the reasoning with which the case is made (logical fallacies).

CONSENSUS AND CONTROVERSY

Textbooks in most fields, particularly at the introductory levels, focus on *consensus*, on what "everybody knows" and what most practitioners in a field agree constitutes good theory and good practice. However, as students learn more about any field, they come to see that it is full of controversies, ongoing disagreements among experts about what data mean, how evidence should be interpreted, or how research should affect practice. These controversies are often based on important differences. For instance:

- In the field of communication, some scholars consider the most important communications to be public statements like speeches and announcements, while others consider the informal interpersonal communications between individuals to be more significant.
- In psychology, some researchers attribute individual differences to learned behaviors, while others attribute them to physiological factors.

Scholars and experts writing for others in their field tend to focus more on the controversies, problems, misinterpretations, reinterpretations, and arguments in their field than on the consensus that almost everyone in the field agrees on. In communicating their research, scholars construct arguments, supported by evidence appropriate to their field, to fill gaps, to correct errors, and to apply data or methodologies from one context to another. But, as Bronowski insisted, they leave room for doubt, since knowledge always grows and changes as data accumulate and paradigms shift. The Nobel Prize-winning physicist Richard P. Feynman describes this necessary doubt as both the beginning and the end of the scientific process:

The first is the matter of judging evidence—well, the first thing really is, before you begin you must not know the answer. So you begin by being uncertain as to what the answer is. . . . The question of doubt and uncertainty is what is necessary to begin; for if you already know the answer there is no need to gather any evidence about it. Well, being uncertain, the next thing is to look for evidence, and the scientific method is to begin with trials. But another way and a very important one that should not be neglected is to put together ideas to try to enforce a logical consistency among the various things that you know. It is a very valuable thing to try to connect this, what you know, with that, that you know, and try to find out if they are consistent. And the more activity in the direction of trying to put together the ideas of different directions, the better it is . . . Authority may

be a hint as to what the truth is, but is not the source of information. As long as it's possible, we should disregard authority whenever the observations disagree with it. (103–104)

Feynman looks at “authorities” as a starting point, not an ending point; when conducting a scientific experiment, a researcher does not know the answer to the question, and thus seeks to extend knowledge, not merely repeat it. A researcher doesn’t have a real inquiry if the answer to the question is already known.

PARADIGMS AND WARRANTS

Rational arguments are possible because people within fields of study and work share a consensus concerning basic assumptions, procedures, and practices. They agree about the appropriate ways to ask and answer questions, and about what questions can be asked within a field. These *paradigms* (to use a term applied by the historian of science Thomas Kuhn) may change over time. Kuhn uses as an example the idea that the sun revolves around the earth, a paradigm shared by most intelligent and educated people until the seventeenth century, when it became clear that the Copernican paradigm of a sun-centered (solar) system offered a simpler explanation for the movements of planets and stars that had been revealed by the increasingly improved telescope lenses of that time (68ff). In the nineteenth century, a similar paradigm shift occurred in medicine as the germ theory of disease replaced the idea that the cause of illness was bodily humors (fluids) being out of balance.

Paradigms may shift, but warrants (as defined by Stephen Toulmin in the 1950s) are even more basic assumptions. Because they rest on often unexamined assumptions about what is good, true, and (in some fields) beautiful, warrants tend to be quite stable. Scientists tend to share the warrant that the simplest explanation for a phenomenon is more reliable than a complicated one. For example, during the century or so before the Copernican theory was widely accepted, the lenses used in telescopes were greatly improved, and astronomers could see and chart more planets and stars and their movements in relation to each other. They had to make increasingly complex and awkward charts and models to explain the movements of planets and stars through spheres that almost everyone believed circled the earth and constituted the heavens. Putting the sun instead of the earth at the center of what came to be known as the solar system allowed for a much simpler model and clearer explanations of what they had observed, and because most scientists assume that the simpler explanation is more apt to be true, the paradigm shift was warranted.

Many academic fields also share the warrant that a valid theory must be capable of being disproved by later research (“falsifiable”). This warrant offers the room for doubt that Feynman wrote about. Most fields also share the warrant that material explanations outweigh nonmaterial explanations. Thus, for example, physicians look for physical explanations for illnesses, and astronomers look for material explanations for the sudden appearance of a comet. In the sixteenth century, however, a supernatural explanation would have seemed warranted to most people—witchcraft, perhaps, or a miracle. Or, to use a fictional example, I might firmly believe that an airplane I am riding in is held up in the air by the force of my will to keep it flying, but there is no way to measure and prove or disprove that proposition about the strength of my will. The basic

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principles of aerodynamics, however, have been measured over the decades and refined to adapt to new evidence, in response to the doubts Feynman sees as necessary to science. The results of mechanics and physics are falsifiable by experiment, not dependant on assertion alone.

Arguments about warrants can be deep and bitter, since they involve basic beliefs about goodness, truth, and beauty. To say that someone's conclusions are unwarranted can draw a clear line in the sand. A clear example identifying warrants and showing how they shape arguments can be seen in David Brooks's *New York Times* (op-ed) opinion piece "Virtues and Victims," (p. 241 in the Readings). Brooks compares two different warrants for understanding an incident at a university in which several lacrosse players were accused of rape after a party. Brooks's point was not about the players' innocence or guilt, which he assumed would be settled in the courts, but about two ways of looking at what happened: as an issue of personal responsibility or as an issue of the social and cultural setting of the university in its town and of athletes in the university. The courts found the athletes to be innocent, but Brooks's piece about this incident is useful for understanding these two different ways of framing responsibility: individual responsibility versus social values. Although a rape would be judged "bad" by adherents to both warrants, Brooks points out that the arguments about whom to blame and how to avoid such incidents in the future look very different, depending on the warrant on which they rest. Warrants, then, can contain fighting words and can also preclude argument, since arguments depend on the arguer and the audience sharing pretty much the same warrants about how things work.

On the other hand, although some warrants are absolute (either/or), they can also be more subtle. For example, some people might argue from the warrant that *both* personal morality and institutional culture contribute to bad behavior. Because warrants involve basic assumptions that are often left unstated, they can be tricky to identify, and developing research skills requires practice in identifying warrants in both sources and your own inquiries. Identifying, analyzing, and making arguments help clarify how warrants connect evidence through general, often unstated principles, and can help you identify where your own warrants overlap or contradict the warrants of other arguments or each other.

THE STRUCTURE OF AN ACADEMIC ARGUMENT

While writing can vary according to the audience, purpose, and demands of a particular project in a particular field, there are some common, recognizable ways in which arguments are usually structured. Recognizing these features can help you make the necessary transitions from field to field.

FOCUS POINTS: UNDERSTANDING ARGUMENTS

- Although an argument can start with a topic or a question, it moves to make a *claim*, which is stated in a *thesis* statement (argument to be made) or *hypothesis* (proposition to be tested).
- Claims are arguable—not a matter of feeling or taste (like chocolate is the best flavor, or football is my favorite sport).
- The writer and the audience must share warrants concerning what constitutes evidence and about how the world works. For example, it is extremely difficult

for a contemporary physician with standard scientific training to argue with a person who believes that disease is caused by witchcraft, since neither accepts the other's evidence.

- An argument about a claim that pretty much everyone believes is probably not much of an argument; there must be room for the doubt Feynman writes about. However, a well-supported claim that questions what most people believe may be worth arguing. For example, a claim like "Competitive sports are an important aspect of higher education because they inspire loyalty in the fans and build character in the players" will probably not make for a compelling argument to an audience of American sports fans—because it will seem obvious. On the other hand, Murray Sperber's claim in *Beer and Circus: How Big-Time College Sports Is Crippling Undergraduate Education*, that big-time competitive sports at universities are damaging to both athletes and nonathletes, is a claim that he can and does vigorously argue for by assembling reasons and evidence for an audience concerned about a presumed decline in academic achievement in college. In turn, his claim has given rise to further counterarguments about the benefits of college sports in response to his challenge. Notice that although they make different claims, both sides of this argument share the warrant that universities can and should contribute to the health and character of all students and that these characteristics can be measured in various ways; they differ primarily about the means to this end and the measurements they use.
- In any argument, the claim is supported by reasons, the grounds on which the writer will support the claim.
 - The reasons are in turn supported with evidence, the documented results of investigation. In the humanities, evidence is found in the sources consulted, that is, literary works in literature courses, or historical documents (or accounts of them) in history. In science, the evidence consists of the documented results of experiments, systematic observations, and calculations. Many of the social sciences use both kinds of evidence.
 - Most of an argument consists of supporting the reasons by presenting and defending evidence and by refuting conflicting evidence to show that it is wrong or irrelevant to those reasons.
 - Sometimes writers can find direct, clearly relevant evidence to support an argument; other times they assemble other kinds of support, such as definitions, comparisons and analogies, and appeals to the needs and values of the particular audience.
 - Sometimes arguments are supported by secondary arguments with claims, reasons, and evidence of their own, and reasons are defended by making subordinate arguments that contribute to the primary claim.
 - In U.S. academic discourse, when a paper is constructed as an argument, the major claim is usually stated in the introduction of a paper and set in the context of current knowledge in the field; often the sequence of reasoning that will be followed is also stated or suggested. Most of the body of the paper lays out the evidence for the reasons and shows how they support the claim. The conclusion, then, reiterates the claim and discusses its significance to the field.

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- ✎ You can usually find the major claims, reasons, and organization of the evidence in a piece by skimming it. Try highlighting the first sentence of each paragraph of a source you are working with, as well as the first and last sentences of the introduction and conclusion. The highlighted sentences will usually produce an outline of the argument.

EXAMPLE 1.1 *An Argument in Biological Ethics*

Francine Patterson and Wendy Gordon, researchers in gorilla behavior, argue that gorillas deserve to be considered moral beings, like humans, because they share some fundamental mental qualities with humans, including intelligence, emotionality, the capacity for creative expression through language and other means, and self-awareness (70–71). They support each of these reasons with experimental evidence that shows that gorillas possess these qualities to the extent that some humans, such as young children and the mentally disabled, possess them. The warrant for their claim that gorillas are entitled to moral rights we normally consider uniquely human is that all beings should be consistently classified according to the qualities they are observed to have.

Question

What alternative warrants (i.e., underlying assumptions about how beings should be classified) might lead to a different argument and a different conclusion, even if we accept the evidence for gorillas' mental capacities that results from the researchers' documented experiments in teaching and testing gorillas?

EXAMPLE 1.2 *An Argument in Sociology*

Eviatar Zerubavel argues that our memories are not completely individual, but result from our participation in a particular community of knowledge, a social group (for example, a nation, a tribe, or a religion) that sets rules by which we remember (89). His main reason is that many members of the same group hold similar memories, which he attributes to how the social group constructs its history into stories. These shared stories are shaped by certain beginnings (or births) of eras often marked by particular discoveries; they distinguish between history and prehistory and create specific traditions of memory, so that individuals remember events they were not personally involved in and share the feeling of belonging to the social group (i.e., we can feel pride in our nation's founders, even if our own ancestors recently immigrated from another country). His evidence includes the inclination of almost every society to write histories, pass along oral traditions, preserve historical sites, and commemorate particular events, which he supports with examples spanning disparate social groups. The warrant for his argument is that similarities in the way people think are caused by the influence of a group to which they belong.

Questions

Suppose you assumed (as some social scientists do) that similarities in the way people think are caused by the inherent truth of what they observe and experience? Or by their own individual experiences and perceptions? How would those different warrants affect the argument described above? What alternative claim(s) might be made?

EXAMPLE 1.3 *An Argument in Educational Administration*

The Readings section contains an article by Alfie Kohn, which argues that grade inflation is a myth that diverts attention from the real problem with grading: that grading impedes rather than fosters learning. The underlying warrants for this argument are that the purpose of education is learning, which is impossible to measure accurately, and that students and teachers share this purpose. There are two main claims in this argument:

1. Kohn supports the claim that grade inflation is a myth with three reasons:
 - that accounts of grade inflation are based on false information,
 - that no one has actually proven that students today get As for work of a quality that once received Cs or Ds,
 - and that the warrant that there can be “an objectively correct evaluation of what a student (or an essay) deserves” is outdated and wrong.

He supports these reasons by refuting the conclusions drawn by earlier researchers on the grounds that their evidence is unreliable, that they fail to refute alternative interpretations, and that they are tainted by a conservative political bias, and by citing data from a U.S. Department of Education analysis of student grades, assumed to be a highly reliable source, that grades have not risen, but actually declined, over the years.

2. Kohn supports the claim that grading impedes learning by arguing against the underlying warrants of the opposing argument:
 - that the purpose of education is ranking students,
 - that stringent grading improves learning,
 - and that grades are a good motivation for student learning.

He supports these arguments with evidence drawn from published research that demonstrates that students learn better from internal motives and from teachers who expect them to succeed rather than to compete.

Questions

- When you read this piece, you may notice that Kohn refutes the warrant that what a student learns can be effectively measured by merely condemning this idea as outdated and simplistic, whereas he provides considerable evidence to refute the idea that grades are an effective motivator. In what ways are these different kinds of warrants?
- How does a writer distinguish between warrants that need to be defended and warrants he can expect the audience to share?
- Why might Kohn have chosen simply to dismiss the warrant about measurement?

EXAMPLE 1.4 *An Argument in English Studies*

In a well-known article, reprinted in the Readings section, Jane Tompkins argues that all attempts to see the past are affected by the points of view of historians and of contemporary witnesses, but that nonetheless researchers can make reasonable conclusions about past events by comparing the various accounts with a critical mind. Like Kohn, she makes two claims, the second building on the first.

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1. Her first claim, that all attempts to see the past are affected by point of view, she supports by arguing that both distinguished historians and firsthand witnesses are products of their times and cultures, which shape what they see, what they think needs to be recorded, and how they describe what they see. As evidence, she analyzes excerpts of texts first by historians and then by eyewitnesses (such as a woman held captive) about relations between white people and Native Americans.
2. Her second claim, which modifies the first, is that we can still reach reasonable conclusions about the past by “piecing together facts from contradictory evidence and convergent points of view,” a claim she supports by demonstrating this kind of “piecing together” and the presumed facts available as a result.

Questions

- In what ways is Tompkins’ argument similar to Zerubavel’s?
- What do these examples suggest about the different kinds of evidence used to support arguments in different academic fields?

VISUAL ELEMENTS IN ACADEMIC ARGUMENTS

Like other writers, academic researchers often support their writing with visual elements, but usually they are informational, not emotional. For instance, a magazine article might make an effective case for famine relief with a picture of a weeping mother; a scholarly argument, on the other hand, might instead use visuals like a chart of the ages of famine victims. Scientists and social scientists designate visuals as figures—including charts, tables, graphs, and occasional diagrams. Researchers in these fields expect to be able to “read” the (logical) argument of the paper from the figures, which render quantifiable data in a visual format. In businesses and most administrative work, an organizational chart helps both employees and clients find their way around (see Fig. 1.1).

In most fields in the humanities, researchers use visuals less often (except in fields like art history), and the visuals (like maps, portraits, etc.) are used more to supplement the argument than to make it. For example, the map in Figure 1.2 gives a clear picture of the relative sizes of the United States and Mexico before the Mexican War in 1846–1848, a picture that could be used as evidence for several different arguments. When pictures are used—as they often are, for example, by historians and biographers—they are sometimes collected together in one or two sections set off from the rest of the text.

A good place to look for maps, pictures, and other visuals that may be freely used for noncommercial sources (like research or teaching) is: en.wikipedia.org/wiki/Public_domain_image_resources. Be sure to check the policy for using the image to be sure that you may download it and use it as you intend. For example, students might be allowed to use a visual in a paper, but not on a Web site. This is the owner’s decision, not the user’s. Be sure to cite visuals as you cite other sources, unless you create them yourself. The issues of copyright and plagiarism will be discussed more fully in Chapter 3.

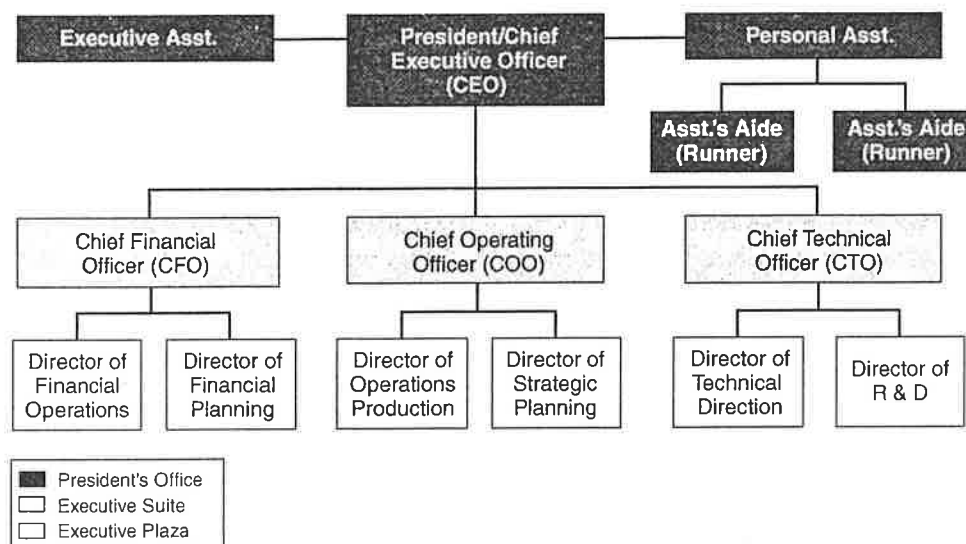


FIGURE 1.1 Organizational Chart



FIGURE 1.2 Map of the United States, 1830

ARGUMENT

Persuasion is the art of convincing others to do or believe something. Persuaders tend to use a variety of techniques in the field of persuasion. Persuasion is a central element in Crick's "Moral Argument" rooted, however, in distance. Feynman's breakthrough that "We've got this structure."

The persuasion can be a researcher's appeal, an appealing argument, an appealing defended. A clear view of many successful appeals (perhaps ignoring major media, which on their success the attractive or attractive discussions of Americans.

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ARGUMENT AND PERSUASION

Persuasion draws on elements of argument, but persuasion attempts not just to convince, but to move the reader to action or to a major change of mind. Academic readers tend to be persuaded by strong evidence, good reasoning, and an ethos of expertise in the field. A persuasive researched argument not only argues its own case, but demonstrates its relation to other knowledge in its field. A strongly persuasive researched argument can change the shared knowledge or standard practices in a field, as Watson and Crick's "Molecular Structure of Nucleic Acids" did in genetic research. The persuasion is rooted, however, in the evidence; the authors maintain their ethos as scientists by retaining distance from their conclusions, leaving the room for doubt discussed by Richard Feynman. For example, in reporting their discovery of how DNA works, an important breakthrough in the life sciences in 1953, James Watson and Francis Crick merely claim that "We wish to suggest a structure for the salt of deoxyribose nucleic acid (D.N.A.). This structure has novel features which are of considerable biological interest."²

The possibility of persuasion lies at the heart of much academic writing; every researcher wants to have a recognizable impact on the field. On the other hand, persuasion can have manipulative aspects as well, as when a writer relies excessively on appealing to the reader's emotions (pathos), and when a writer simply asserts in an appealing way claims that are not proven or assumptions that are not stated and defended. Advertisers regularly persuade people to buy a product or accept a particular view on an issue by appealing primarily to the emotions of a target audience, and many successful marketing campaigns demonstrate how the force of an emotional appeal (pathos) or the pull of a celebrity endorsement (ethos) can tempt people to ignore major failures of reasoning. That is why logical fallacies abound in the popular media, where pathos and ethos tend to be more prevalent than logos. Advertisers rely on their success at persuading people to buy a particular brand of soft drink or car by the attractiveness of its commercials, the image it seems to project, and praise by popular or attractive people. Most advertisements rely on fallacies, as do many political discussions on talk shows, commentary programs, and blogs—and so contemporary Americans get used to hearing people make illogical leaps between ideas.

FALLACIES

Fallacies that undermine good arguments occur when the connections among claims, reasons, and evidence are faulty or nonexistent. These gaps often come from the desire to make a strong argument, a desire that can tempt writers to assemble all the supporting evidence they can find (even the dubious bits), to exaggerate their position's strength and relevance, and to ignore contradictions, exceptions, and counterexamples. Of course, deliberate misrepresentation should not be part of the process of argument, and unless there is clear evidence of intent to deceive, you should assume that fallacies in the academic arguments of faculty and students are unintentional. However, when they are exposed, *mistakes* detract nearly as much as *lies* from the credibility of an argument. Since most academic researchers write primarily for critical peers in their field like the scientists Bronowski describes earlier in this chapter, they know there is a good chance that their mistakes will be caught and exposed in reviews of their work—and so they try very hard to avoid them. Academic argument, to be persuasive, must be logical—and that implies that the researcher must be willing to

change positions if new or better evidence shows that a claim is false. In short, academics' arguments rely on research to provide the evidence to support their claims.

FOCUS POINTS: COMMON LOGICAL FALLACIES

As you practice finding and using research, watch your reading and writing for major logical fallacies that involve generalizing from insufficient evidence and appealing excessively to personalities and emotions. Notice that in the following examples one fallacy often breeds another. There are many ways to generalize from insufficient evidence, but these are some of the most common:

- **Hasty generalizations or false generalizations:** This fallacy assumes that an exceptional case is typical, or assumes erroneous relations between individuals and classes of things.

Example

Women should not work outside the home if they want to be happy. My mother was always a stay-at-home mom, and she is the happiest woman I know.

This mother might be an *example* of a happy homemaker, but is she a *typical* example? How do you know? How would you respond to a counterexample of a happy working mother?

Example

I cannot take a course in Chinese-American history because I am not Chinese.

Courses in ethnic and gender studies (African-American Studies, Women's Studies, Asian Studies, etc.) are neither limited to people of that race or gender, nor are they taken by all people who belong to it.

- **Appeals to ignorance:** Not knowing something is a good reason for investigating it, but ignorance is not good evidence to support a reason.

Examples

Because we do not know the consequences of abolishing grades, we need to maintain the traditional system of grading.

Because social scientists disagree about the effectiveness of teaching students to drink more responsibly, these scholars should not bother to investigate this strategy any longer, but simply focus on promoting abstinence.

- **False absolutes:** Absolute claims should rarely—if ever—be asserted (even if you believe very strongly in them) because one exception is all that is necessary to falsify an absolute claim. "All" and "none," "always" and "never" are disproved by one exception. A single second example negates the claim that a thing is "unique" or that your hypothesis is proven. Modifying your claim to admit the possibility of exceptions or alternatives does not weaken it but allows it to bend to accommodate new evidence without breaking. This is why Feynman, a deeply committed scientist, insists on the necessity of entertaining some doubt about what seems certain. Here are some other examples of false absolutes that would benefit from allowing for exceptions by using modifiers like "most," "many," "few," or "seldom."

Examples

Successful students never depend on the pressure of a deadline to get their work done.

All scientists understand that facts change over time as new experimental results are obtained.

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- **False dichotomy/false division:** When you claim that things fall into two or three categories, you should be positive that there can be no other. It is more often the case that there is some intermingling between the categories and some outlying data.

Examples

You are either in favor of having special classes for students whose first language is not English, or you are against this practice.

There are only two ways of understanding the immune system: through the observation of large populations or through controlled experimentation on individuals.

Many people are of two minds about serious issues, and new methodologies are always possible in every field. As with modifying absolutes, you strengthen your argument by acknowledging the gray area rather than letting the reader find exceptions that support a counterargument.

- **False cause:** Cause and effect are very hard to prove. Demonstrating that one event happened before another does not necessarily mean that the earlier one caused the later. They may be totally unconnected, they may stem from the same cause, or they may be the result of multiple causes rather than merely one.

Examples

I got an A on the paper because I turned it in on time.

The French Revolution occurred because of the example of the American Revolution a decade earlier.

You usually need to make an argument about cause, not just assume or assert it. If you added to the first statement "and the teacher cares more about papers being turned in on time than anything else," you'd have a reason that looks very much like a false generalization, and thus a reason in need of evidence to support it.

- **False analogy:** Analogies are an important means for making an argument, particularly when there is little or no direct evidence to support a point, but they should not be the argument's only support. An analogy is only as valid as the resemblance of the features being compared. For example, an epidemiologist might use rates of disease in rat populations to predict rates of disease in human populations; the validity of the argument would lie in the extent to which the two species are comparable, which could be established by citing other studies in which rat populations predicted similar effects in human populations. A false analogy is one in which the comparison cannot be defended or has not been sufficiently defended.

Examples

Notice how the following false analogies also try to arouse pathos:

Denying on-campus parking to students would be like denying a life jacket to a drowning man.

A computer is like a human brain, only faster and more accurate.

These are exciting words, but to be reasonable, the analogy must be explored and defended.

FOCUS POINTS: EMOTIONAL FALLACIES

Many of the fallacies above also involve pathos and ethos as well as logos. Emotional fallacies come from inappropriate, irrelevant, and excessive appeals to ethos (the

authority of the writer) or pathos (the emotions of the reader). Here are some more gaps in reasoning to watch out for in your reading and to avoid in your writing:

- ❖ **False authority:** When you use an authority to support your claim, you need to be sure that he or she has actual authority in that particular field. A Nobel Prize-winning biologist like James Watson is probably not an expert in economics or population dynamics.

Example

Dr. Jones, winner of the prestigious Smith Award in Physics, has stated that the Civil War had little to do with slavery.

- ❖ **Guilt (or credibility) by association:** A person's affiliation with a certain group (like a religion or a political party) does not necessarily mean that his conclusions are biased or untrue, although the affiliation might influence his thinking; likewise, an affiliation does not necessarily mean that his conclusions are accurate or fair, although relevant credentials and associations can be marks of credibility. (See the discussion of "Evaluating Sources" in Chapter 2.)

Example

Because Professor Abbot has served as an influential advisor to the Reagan administration, his advocacy of free market economics is suspect.

Closely related to this fallacy is the *ad hominem* fallacy, in which a person's ideas are discredited solely because of who he or she is or because of qualities the audience might find distasteful.

Example

Since Dr. Anderson is known to be an atheist, her statistics on hunger in Michigan cannot be accepted as accurate testimony before the state legislature.

It is possible to make a case for the unfairness, or bias of a source, but the reasons must be directly relevant to the claims, and the case must be argued, not accepted as given.

- ❖ **Bandwagon:** Even though most people believe in an idea or practice, even though it is customary, or even though it may be rapidly gaining in popularity, it is still necessary to argue—that is, show reasons and evidence—why the idea or practice would be useful in a particular situation. Moreover, what everyone knows or does can change drastically from generation to generation, as was the case when "everyone" knew that the sun revolved around the earth.

Example

Because all colleges with any claim to keeping up with contemporary technology are requiring students to purchase laptops and PDAs, our university should follow this lead.

This can be the basis for an argument for or against such requirements, depending on the particular circumstances of a school's faculty or student body, but by itself it is merely an assertion in need of defense.

- ❖ **Slippery slope:** It can be tempting to assert that a step in one direction will inevitably lead to the worst conceivable results, particularly when you are arguing about issues with ethical implications. Seeing a potential future abuse can be a useful way of thinking or rethinking an issue, but predictions alone are not an argument for or against a future outcome. If a claim for a chain of results (devastating or beneficial) is made, it must be supported by reasons and evidence that demonstrate that the predicted effects might actually occur.

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Example

If teachers start to distinguish between buying term papers and faulty citation, eventually everything students hand in will be plagiarized.

Generations of students and teachers have struggled with this issue, but most students still do their own work. People can stay on slopes, even slippery ones, for a long time.

- **Appeals to tradition:** What has been done in the past may not continue into the future, and not everyone benefits from, believes in, or engages in traditional behaviors, functions, and activities. The argument for or against the value of a practice must be made, not simply stated.

Examples

Owning your own home is good because it is a central aspect of the American Dream.

It is a mistake to allow women into the higher-earning professions, since men have always been the primary breadwinners in a family.

- **Appeals to spite and ridicule:** Clearly, these are not arguments, but name-calling, which is never appropriate in academic discourse. Such emotional appeals can set up a false dichotomy in a particularly nasty way.

Examples

Only an idiot would . . .

Any self-respecting engineer knows . . .

Spite and ridicule are often used in propaganda, particularly when one side has no respect for the other. Think about the caricatures of politicians in newspaper cartoons, for example. And for a particularly vicious example, see the World War II propaganda poster in Figure 1.3.

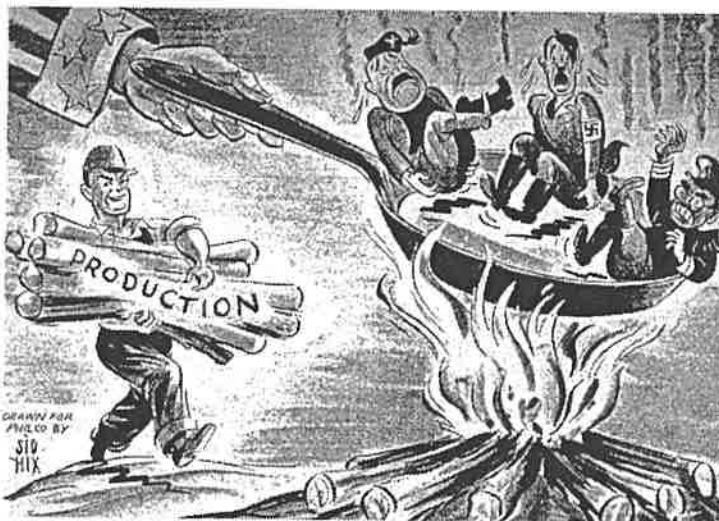


FIGURE 1.3 "Warning" Poster

Appeals to the emotions like this, combining fear and ridicule, are common to all sides during wars and in intense ethical and political debates.

VISUAL FALLACIES

Although we often tend to believe what we see more than what we read, visuals can also be fallacious. For example, photographs may be cropped to make crowds seem larger or smaller than they actually were, and they can leave out matter that modifies or contradicts the point the writer wants to make. Even worse, current computer technology allows for rearranging photographs, so that people from different photographs can be made to seem to be talking with each other, backgrounds can be changed, and so on. Graphs can be designed so that the visual elements make differences look smaller or greater than the numbers they are designed to represent. In the excerpt from his book *The Visual Display of Quantitative Information* (p. 303), Edward Tufte calculates a “lie factor” for false graphics, by dividing the size of an effect as seen in the graphic by the size of the effect the data supports. Tufte asserts that lying through visual design—like any other form of deception—is not only wrong, but ineffective in making an argument. As with most deceptions, once the attempt to deceive is uncovered, the credibility (ethos) of the writer or designer is severely undermined. When evaluating sources with visuals, you may find Tufte’s “lie factor” a useful means of assessing reliability.

Exercises

1.1 RECOGNIZING AND ANALYZING ELEMENTS OF ARGUMENT

1. Read the opinion piece in the Readings by one of the following authors: David Brooks, Robert Macfarlane, or Rebecca Moore Howard. With one or two of your classmates, identify elements of logos, ethos, and pathos in the piece.
2. Next, identify the author’s claim(s), reasons, evidence, and warrants(s). Highlight these parts of the argument with different colored highlighters or underline them with different colored ink. If any warrants are not stated, decide what they are and write them down.
3. Write a brief response that addresses the author’s argument and use of references.
4. Repeat this process with an opinion piece you find for yourself in the op-ed (Opinion and Editorial) section of a newspaper.

1.2 FINDING FALLACIES

With one or two of your classmates, select advertisements from different kinds of magazines, and one or two television advertisements that seem convincing or that you particularly enjoy. Collect at least five different advertisements.

1. Identify the audience that each advertisement seems to be aimed at.
2. Identify at least five of the fallacies listed above. Look for these fallacies, particularly the emotional fallacies, in the pictures, as well as in the words. Write a short description of how one of the advertisements uses pictures and text to appeal to the emotions in order to persuade the reader/viewer.
3. Repeat this analysis using another printed advertisement or television commercial aimed at a different audience.
4. Review three of the op-ed pieces in the Readings, and disclose any fallacies you find in these authors’ reasoning.
5. Collect some examples of solicitation letters that come in your mail or on Web sites you visit. Review three of them to identify their warrants. Then, disclose any fallacies you find in the letters.

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1.3 MAKING FALLACIES

Write your own examples of five of the fallacies described in this chapter, and then explain how they could be exposed or modified. If you like, design at least one visual, and explain how it works to entice the reader to accept unreasonable assertions. How do pictures contain fallacies and how can researchers expose them?

1.4 QUESTIONS FOR FURTHER CONSIDERATION AND INFORMAL WRITING

Write an informal reflection on one of the following topics:

1. How well does your own sense of "argument" and "controversy" accord with the way those concepts are discussed in this chapter? How similar and different do academic arguments seem from everyday disputes?
2. What controversies have you been involved in? Describe how warrants allowed you to resolve them or prevented you from doing so.
3. Have you encountered any controversies in your major field of study or in another academic discipline? Are any controversies discussed in the textbooks you have used so far? How would you describe how changes (or advances) in knowledge in your field have been represented to you?

