

going to be clear, vivid, to-the-point, and *brief*. Those familiar with competitive debate may have noticed that in some formats debaters rely on very long quotations and spend much of their time *reading* rather than *speaking*. That style may be appropriate in a setting that places a primary focus on policy analysis rather than on communicating to a common audience, but in a public setting debaters should try to avoid any quotations that require them to read for more than a couple of sentences or so—unless the impact of a longer quote is likely to be very powerful. One useful technique is to alternate between paraphrasing and quoting (being careful, of course, to convey the author’s intent accurately and not to represent as a quotation something that is actually a paraphrase).

The example on the previous page shows how we might move from finding material in an article, to placing it on an index card, to finally using it in a speech. This evidence would carry an appreciable weight in a public debate. Not only is it from a former government official at the Cabinet level (the equivalent of a European minister) with experience in drug policies, but it also contains a clear international comparison and concrete numbers (“a 200% increase”) along with a discussion of the implications of those numbers (increases in crime and declining quality of life). Finally, notice that the quotation as expressed in the speech is “framed” by the advocate’s own words. Instead of just saying, “Here is what the former official has to say . . .,” the debater begins with his own claim (“If we were to make policies against marijuana more liberal, we would see an increase in drug use and crime”), and then supports that conclusion with the data from the former official, before ending with a reiteration of his own claim (“Thus greater freedom means greater abuse”). In this way, we get the sense that the advocate has *remained* an advocate. Instead of letting Mr. Califano do all the talking on this point, the phrasing makes it clear that the advocate’s argument is primarily and ultimately an argument that he is making himself, with the support of Mr. Califano’s testimony.

The conclusion to be drawn is that while evidence plays a supporting role, and can never fully replace the reasoning of the debater, there are many instances in which the authority and the specificity of quoted evidence can add to our understanding of the issues and make for a better and more persuasive argument.

Developing Successful Patterns of Reasoning

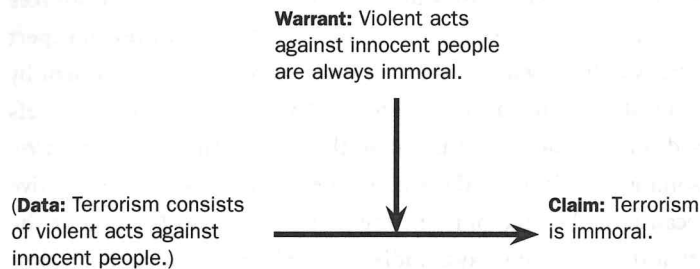
Now that you have learned about your subject area by making use of external sources, the next step is to draw upon these resources and the resources of your own mind in order to construct powerful reasons. The use of expert testimony that we discussed above is one form of reasoning (argument by authority), but it is far from the only form. Audiences don’t form beliefs simply based on what an expert has said; they also form beliefs based on sound reasoning appeals. Indeed the best expert testimony will be effective not just because of the credibility of the source, but also because of the reasoning that the source displays. Audiences are likely to judge that claims are well supported when they conform to one of several familiar patterns of reasoning. The main patterns that we will discuss here are reasoning by deduction, example, cause, analogy, and sign. Each of these forms will be discussed and illustrated below.

The audience, of course, is not expected to know the specifics of these reasoning forms. They are not likely to know the difference between deduction and sign reasoning, but they will have a sense of what sounds like a “good reason” to them and what does not. The value of knowing these forms of reasoning lies in analysis, not in presentation. That is, a debater wouldn’t say: “And now, if you are ready, here comes an analogy!” Instead, she might simply use the analogy knowing that the audience will recognize it and make sense of it. Knowing in your own mind that it *is* an analogy, however, and not a sign or a deduction, will help you to know what makes the argument strong and what may make it weak. In short, thinking about argument forms helps you to construct them and to critique them. Being able to recognize them isn’t just a matter of making an academic classification; it is a way of knowing what to look for and what to emphasize.

Reasoning by Deduction

Deductive reasoning consists of moving from general principles to specific conclusions. The most familiar syllogisms taught in school are usually examples of deduction: All cats are mammals; Fifi is a cat; therefore, Fifi is a mammal. The reasoning works by a process of transference: that which we know about the general category or principle is transferred to the specific instance.

Violent acts committed against innocent people are always immoral, and that is why terrorism is immoral.



In this case, we are offered an argument by definition. The advocate is relying on the audience's knowledge of what terrorism is and adding the general principle that such violence against innocent people is always immoral in order to support the claim that terrorism (the particular case) is also immoral. (You will note that this example is another enthymeme: the data part of the argument is left unspoken, to be supplied by the audience.)

The advantage of deduction is that it is *structurally certain*, that is, if the support is true, then the conclusion must be true as well. If it really is the case that *all* violence against innocent people is immoral, and it really is true that terrorism consists of such violence, then the conclusion follows inescapably. The problem with deduction is that it rests upon the absoluteness or uniformity of some sort of category. Indeed, one way to recognize deduction is to look for the presence or implied presence of a word like "all" (e.g., *all* men are mortal . . .). This pattern works well in the case of an argument by definition, which is what we have with our terrorism example. Such a pattern may also work well in fields that embrace absolutes: religion, mathematics, and some philosophy. But arguments that deal with the vagaries of human and social affairs are more likely to be characterized by tendencies and relationships, not by absolute categorical connections. For that reason, many arguments that we might find in the public sphere would really be better characterized as *sham deductions*. Consider the following:

Baltimore is an American city, thus we shouldn't really expect it to have a very effective mass transit system.

The argument breaks down as follows: "American cities lack effective mass transit, Baltimore is an American city, therefore Baltimore lacks effective mass transit." The problem for this argument is that for it to work as a deductive claim, the first statement would have to be that "*All* American cities lack effective mass transit"; any visitor to New York, San Francisco or the District of Columbia would know that this is not true. Even though it may be true that *most* American cities emphasize automobile transit rather than mass transit, the statement isn't a universal; thus, we can't treat it as absolute. The claim that Baltimore lacks effective mass transit may be true (and one of your authors can assure you that it is) but the reasoning that supports it in this case is not.

Thus, advocates relying on deduction need to ensure that they are reasoning from a principle that really is categorically true. Advocates replying to an instance of deduction need only come up with one exception in order to indicate that the principle doesn't always hold true.

Inductive Reasoning

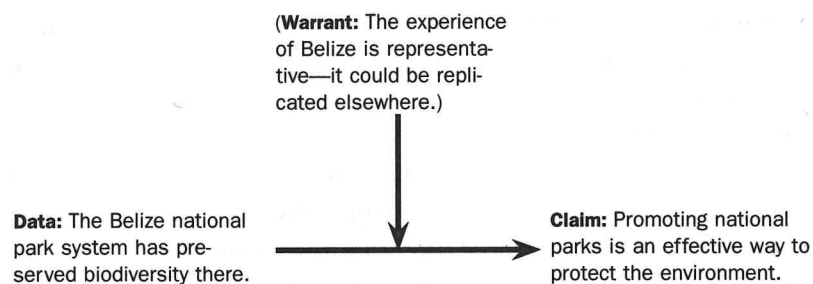
Deductive reasoning, as we noted above, moves from general principles to specific conclusions. Inductive reasoning moves in the opposite direction—that is, inductive reasoning begins with known, particular truths, and then draws a general conclusion on the basis of those truths. It would be an example of inductive reasoning to say: "Baltimore has no effective mass transit; the same is true of Detroit, Cincinnati, Hartford, Los Angeles, and Kansas City. Therefore, we can conclude that American cities do not have effective mass transit." The patterns of reasoning that follow (by example, analogy, cause and sign) are all types of inductive reasoning.

Reasoning by Example

One of the easiest (though not necessarily one of the strongest) patterns of reasoning is reasoning by example, which involves the presentation of one or more instances of the claim being true. To reason by example is to move from the truth of a particular instance to a general conclusion. If deduction means knowing that the filling of the whole pie must also be the filling of the piece of the pie, then reasoning by example means reasoning that the filling of your piece of the pie is most likely the filling of the rest of the pie as

well. This is also a process of transference but moving in the other direction: what we know about the specific instance is inferred to be also true about the more general category.

Promoting national parks is an effective way to protect the environment. A network of more than twenty national parks and sanctuaries in Belize has preserved that country's rich bio-diversity.¹⁵



The unstated warrant in this case, as in the case of all arguments by example, is that the example is representative. The assumption is that we can reason from the specific to the general because the specific in this case is a good example that doesn't differ in important ways from the larger case. Examples that are exceptional or unique are not good examples, at least from the perspective of reasoning. If Belize were the *only* nation in which national parks served as havens for bio-diversity, then the claim would hardly be reasonable.

This notion of representativeness can be difficult to assess. After all, if we knew what was true of the whole category, then we would hardly need the example. Often we use examples precisely because we cannot speak to the whole. The modern public opinion survey can be seen as an illustration in this regard. If we really want to know what British citizens think of Prime Minister Tony Blair, we would have to ask all of them. We can't do that, so instead we ask a very small minority, perhaps only a thousand or so. Such polls can be inaccurate, of course, if the people that you ask are not a representative sample. We could imagine a researcher interviewing people coming out of an unemployment office and concluding that nearly all Britons despise the prime minister. In reality, however, public opinion polls tend

to be very accurate because researchers pay a great deal of attention to the representativeness of their samples. By ensuring that the small subset they consult contains the same diversity as the population as a whole (that is, the same mix of sex, age, income, religion, and dozens of other variables), survey researchers produce conclusions with a high level of reliability.

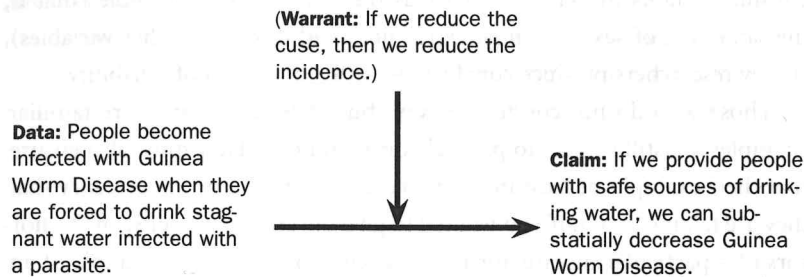
Those who do not conduct surveys but instead rely on more familiar examples are still subject to parallel considerations. They must also ensure that their example, at least in a rough sense, is typical of the category that they are talking about. If you wanted to give the audience a sense of the horrors of a particular disease, for instance, and you picked an example of an individual afflicted with the most extreme and horrific suffering you could find, then you might be building your emotional appeal but not your logical appeal. While examples may have other than logical uses (e.g., producing vivid images and creating identification), the use of the examples as a tool of reasoning always carries the implicit warrant "this is typical." Public debaters who are employing examples for that purpose should justify the representativeness of their example (e.g., "Joe is just one of thousands of individuals dealing daily with these symptoms . . .") and those who are in the role of responding to examples would be wise to question their representativeness (e.g., "So, how typical is it that the effects are this extreme?").

Reasoning by Cause

From the time we were small, we have all made sense of the world around us by understanding causal connections. We ask, "What happens when I do this?" and note the results of our action. This is how we explore and test our hypotheses. Forming and supporting causal connections remain a fundamental part of the act of advocating and evaluating. A *causal* relationship can be defined as a functional connection in which the presence or change in one thing results in the presence or change in another. Smoking causes lung cancer, sex causes pregnancy, and weight lifting causes the development of stronger bones. The simple existence of a causal relationship may be the focus of an argument, but more often the implication of a causal relationship is likely to be the most important part of the argument.

People become infected with Guinea Worm Disease when they are forced to drink stagnant water infected with a para-

site. Thus, if we provide people with safe sources of drinking water, we can substantially decrease Guinea Worm Disease.



In this example, the advocate argues that because we know the cause, then we know the likely effects of a cause's removal. To say that "A" causes "B," means that in the presence of "A" we would expect to find "B," or that when we find more of "A" then we would find more of "B" or a greater risk of "B" as well. This simple one-to-one relationship, however, masks a number of distinctions between various types of cause. For example, something can be a *sole* cause (e.g., decapitation causes death) or a *contributory* cause (e.g., his lack of attention while driving on icy roads in a poorly maintained car caused the accident). In addition, a cause can be *necessary* or it can be *sufficient*. In the case of a necessary cause, the effect can't be present without the presence of the cause—the cause is necessary for the effect. In the case of a sufficient cause, the cause alone is all we need in order to produce the effect—the cause is sufficient for the effect. Let's take the example of fire. Oxygen is a necessary cause for fire (you can't have a fire without it), but it is not sufficient (simply having oxygen doesn't mean that there is a fire). Oxygen, a fuel source, and a spark, however, are sufficient for a fire. While these distinctions on what we mean by "cause" may seem technical, they do make a difference: rarely do causal statements on matters of social issues convey a direct and automatic one-to-one relationship. That is, the person is incorrect who thinks that she has denied the argument that smoking causes cancer by mentioning her uncle who smoked every day of his adult life and lived to be 100. A causal argument expresses a relationship that may have a fair amount of subtlety to it.

One specific danger to avoid is the attributed causal relationship that exists simply due to temporal or physical proximity. We can't assume that because two events occur together (in space or in time), then one is caused by another. For example, the months in which the highest number of frozen Popsicles are sold are also the months in which the greatest number of drownings occur: the higher the sales, the greater the number of drownings. That doesn't mean, however, that Popsicles cause drownings.¹⁶ Popsicles and drownings may simply occur together coincidentally or, as is more likely in this case, both may be caused by a third factor (the onset of summer, a time when people swim more—and hence are more likely to drown—and have greater reasons to enjoy cooling snacks like Popsicles). Whether it's coincidence, or a third factor, that makes a statistical correlation between drowning and Popsicles, the fact remains that they do not have a direct relationship with each other. (It would be different, of course, if you could show that people drowned when they were swimming far out to sea to eat Popsicles. . . .) When making or responding to causal arguments, it makes sense to ask a number of questions:

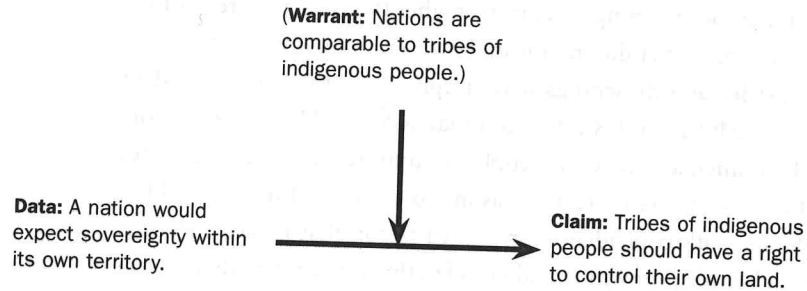
- Does the effect consistently follow from the cause?
- Is the cause alone capable of producing the effect?
- Are there other potential causes?
- What is the magnitude of the relationship (that is, what quantity of the cause is necessary to produce a specific amount of the effect)?
- Is there a *functional* relationship between the cause and the effort, or do they merely co-occur?

Reasoning by Analogy

When a famous and highly paid movie actor or actress needs to do something dangerous in the course of filming a movie, the director will generally use a "double"—that is, someone who looks like the actor or actress and has a greater willingness to risk bodily injury. So one person stands in for the other. An analogy is like that, in the sense that it uses one fact or phenomena to stand in for another: we talk about one thing in order to draw conclusions about another. Of course, you may have noticed that we just used an analogy in order to describe reasoning by analogy. More specifically, though,

reasoning by analogy consists of comparing two cases or events and arguing that what is true of one case or event is also likely to be true of the other.

Just as a nation would expect sovereignty within its own territory, tribes of indigenous people should have a right to control their own land.



In this example, the advocate invites the audience to transfer what they know or feel about a familiar situation (the concept of national sovereignty) to what is perhaps a less familiar situation (the concept of sovereignty for indigenous tribes within nations). The warrant for all arguments by analogy will be that a sufficient level of comparability exists between the two compared cases or events. The weakness in the argument by analogy is therefore the possibility that important differences exist. Certainly, it could be charged that there are important differences between nations and indigenous tribes. Nations generally have international recognition and standing that tribes lack. However, it could be argued that important similarities exist that would support the argument. Indigenous tribes do have systems of law and government as well as customs that bind the population together. It is conceivable that an individual might think of himself as a Navajo first and an American second, for example. The issue is not whether there are differences, since there are *always* differences between the two cases. The issue is whether there are *differences that matter to the conclusion*. You could say that indigenous tribes are not like nations because they are not as large, but should their size affect the control over the land that they do have? Arguably not. (After all, if rights were commensurate with size, you would have to conclude that China has more rights than San Marino.)

In addition to assessing the comparability of the two cases, it is important to distinguish between two types of analogies, that are used in two different ways. Argument by analogy usually consists of a *literal* analogy in which we assert that there is actual and substantial similarity between the two cases. This is distinct from a figurative analogy. Figurative analogies also assert a comparison between two elements, but do so in a more stylistic or metaphorical way. When we began this section you may have objected, “But actors aren’t like arguments!” And you would be right—fundamentally, one is a human being and the other is a concept. In this case, though, the difference isn’t necessarily a problem because our analogy was merely figurative and was being used, as most figurative analogies are used, to explain something in a vivid and memorable way; in other words, we weren’t trying to prove that something about actors was also true about analogies (for one thing, analogies are not willing to risk bodily injury!). That is an important distinction. When we use an analogy to prove something, then we are asserting that there is sufficient real comparability between the two cases to serve as a logical warrant. Argument by analogy can be a useful way of encouraging audiences to see similarities and transfer their knowledge and evaluation from the familiar to the less familiar, but care must be taken in creating and assessing analogies to ensure that the elements being compared truly ought to be compared.

Reasoning by Sign

If you want to know if it is warm outside, and you look out the window and see people walking around in shorts and T-shirts, then that is a good sign. If a boy wants to ask someone out on a date and she says she can’t go because she really needs to wash her hair instead, then that is a bad sign. Signs are simply indications, messages for us to read in order to infer some other meaning. To an experienced tracker, a broken stick is a sign that some large animal has passed this way. Argument by sign means taking note of the existence of some phenomena and inferring the existence of other conditions that tend to accompany those phenomena. When the leaves turn color, it is fall.

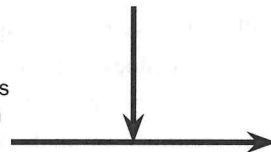
Sign arguments can be confused with cause arguments, but a simple example should illustrate the difference: *The school bell just rang, so the buses should be along any time.* To interpret that as an argument by cause,

one would have to believe that the ringing of the bell *caused* the buses to come. It didn't, however; the ringing of the bell signaling the end of a school day merely accompanies the arrival of the buses and for that reason the statement is an argument by sign. Cause arguments assert a *functional* relationship between the phenomena, while arguments by sign simply assert a correlation between the phenomena.

Maryland's death penalty is racist in its application. A recent study indicates that that black offenders who kill white victims are four times as likely to receive a death sentence as black offenders who kill black victims.¹⁷

(Warrant: Harsher penalties for the killers of white victims is a sign of racism.)

Data: A recent study indicates that among black offenders, those who kill white victims are four times as likely to receive a death sentence as those who kill black victims.



Claim: Maryland's death penalty is racist in its application.

In this example, the advocate reasons from an observed disparity: the killers of one race are much more likely to receive a harsh penalty than the killers of another race. The warrant is that this disparity is a sign of an underlying condition or motivation, namely racism. The argument appears straightforward, but there are a couple of additional considerations in interpreting this and other sign arguments. The step of jumping from the observed sign to the condition it represents is an inference and that inference is only as strong as the connection between the sign and the condition. When using or evaluating sign arguments, you should always ask, "Is the sign a reliable indicator of what I want to prove? Or might it be an indication of an alternate condition?" In the example above, the disparity in sentencing is obviously a concern, whatever its source. But rather than being indications of simple racism, the differences in sentencing may be due to differences in demographics, where the crimes occur, or the habits of different prosecutors. The disparity might also reflect a difference in the nature of the crimes committed: typically, crimes of passion (where the victims are known to

the killers) are not treated as harshly as crimes committed against unknown persons. Careful analysis may require that we look for other signs, or a consistent pattern of signs, before we confirm our judgment.

Conclusion

This chapter has sought to advance the argument that reasoning not only takes a central role in a public debate, but also takes on a unique form within that specific context. Argument means not just asserting or fighting, not just persuading or using logic, but reasoning *with* your audience: finding and using audience premises in a way that builds upon the audience's existing experience and knowledge. By using informal patterns of logic and forming enthymemes, public debaters forge a partnership with audience members. By locating and using external sources and combining that material with their own resources for analysis, public debaters build arguments that adhere to familiar patterns of reasoning and guard against possible weakness.

In making this argument, this chapter has quoted a number of different sources. We have referenced communication theorists, logicians, and experts who have studied a variety of the topics discussed. We have also discussed the indications, or signs, of good argument, developed and applied some general principles of reasoning, reported on some of the causes of effectiveness in persuading with argument, supplied a large number of examples, and even worked in a few analogies. The most important idea to be taken from this is that although we may have used some specialized terms in our discussion, reasoning is fundamentally about making sense, and knowing how to do that is important, no matter what your mission: winning a public debate, trying to talk a police officer out of giving you a parking ticket, or writing a chapter on reasoning. In a public debate context, though, the audience is likely to be diverse, the opponent is likely to be well-prepared, and the time is likely to be fairly short. In that context, we prize arguments that are clear, full and comprehensible upon initial presentation and are designed to withstand both a skeptical audience and an informed challenger. We succeed in that context by making our reasoning explicit and by remaining aware that offering proof is a continuing obligation to satisfy the audience and answer the challenges that might arise.

Notes

1. For example, see E. S. Inch, and B. Warnick, *Critical Thinking and Communication: The Use of Reason in Argument*, 4th ed.; R. E. Lee, and K. K. Lee, *Arguing Persuasively*; Richard D. Rieke, and M. O. Sillars, *Argumentation and Critical Decision Making*, 4th ed.; J. C. Reinard, *Foundations of Argument: Effective Communication for Critical Thinking*; K. C. Rybacki, and D. J. Rybacki, *Advocacy and Opposition: An Introduction to Argumentation*, 4th ed.; D. N. Walton, *Informal Logic: A Handbook for Critical Argumentation*.
2. A complete transcript of this dialogue can be located at <http://wuzzle.org/python/argument.html>.
3. D. O'Keefe, "Two Concepts of Argument," *Journal of the American Forensic Association* 13 (1977): 121–128.
4. D. N. Walton, *Informal Logic: A Handbook for Critical Argumentation* (Cambridge: Cambridge University Press, 1989): 4
5. *Callins v. Collins*. 510 U.S. 1141. See especially H. Blackmun's dissent, Legal Information Institute at Cornell Law School, <http://supct.law.cornell.edu/supct/html/93-7054.ZA1.html>.
6. M. L. Radelet, H. A. Bedau, and C. Putnam, *In Spite of Innocence: Erroneous Convictions in Capital Cases* (Boston: Northeastern University Press, 1992).
7. S. Toulmin, *The Uses of Argument* (Cambridge: Cambridge University Press, 1958).
8. W. Hall, R. Room, and S. Bondy, "A Comparative Appraisal of the Health and Psychological Consequences of Alcohol, Cannabis, Nicotine and Opiate Use," World Health Organization Project on the Health Implications of Cannabis Use (1995), Schaffer Library of Drug Policy, <http://www.druglibrary.org/schaffer/hemp/general/who-index.htm>.
9. Toulmin used the term "rebuttal" for this element. We've elected to use the word "exception" in order to capture a more accurate meaning for the role of this component and also to show a distinction between this element of an argument and "rebuttal" as it is used elsewhere in this book, namely as a label for the act of building up one's own argument after it has been attacked (see chapter 14).
10. R. O. Weiss, *Public Argument* (Lanham, NY: University Press of America, 1995): 87.
11. National Academy of Sciences, *Abrupt Climate Change: Inevitable Surprises* (Washington, DC National Academies Press, 2002).
12. J. C. Reinard, *Foundations of Argument: Effective Communication for Critical Thinking* (Dubuque, IA: William C. Brown, 1991): 107.
13. We lack the space to provide a full explanation of statistical concepts but individuals without a basic background in this area are urged to consult D. Huff, *How to Lie with Statistics*, reissue ed. (New York: W. W. Norton, 1993).
14. Reinard. 107.

15. Belize Audubon Society, National Parks Managed by the Belize Audubon Society, 2002, <http://www.belizeaudubon.org/html/parks.html>
16. This mistake, known as *post hoc ergo propter hoc* (after this therefore because of this), will be covered in chapter 14 with other fallacies of reasoning.
17. S. Levine, and L. Montgomery, "Large Racial Disparity Found by Study of Md. Death Penalty," *Washington Post*, January 8, 2003.