CHAPTER 5:

Step 3 (Support Your Ideas)

This chapter covers:

- The Logic of Arguments: Fundamentals
- Evidence: Proving Your Point
- Characteristics of Good Supporting Evidence
- Logical Errors: Flawed Arguments
- Arguments, Truth and Persuasion

Once you've researched your topic and collected information, you need to figure out how to use what you've found to meet your communication goals. If you're dealing with a controversial question or problem, throwing facts at your audience won't be enough—you'll need to assemble it into a logical argument that can stand up to critical attack. This chapter will give you some helpful pointers on how to build an argument and support your ideas.

Logical arguments are instruments of power. They're how you make things happen. It's worth the effort to understand some basics, even if some of this chapter makes your head hurt.

> *A moment's thought would have shown him. But a moment is a long time and thought is a painful process.*
>
> –A.E. Housman

The Logic of Arguments: Fundamentals

When you present a solution to a problem or answer a controversial question, persuasion is part of the assignment. There are different approaches to persuade members of your audience—you can appeal to their emotions, their ability to reason or even your own credibility on the topic being discussed. In the Air Force environment, your best approach to support your ideas and persuade others is by building a solid logical argument.

Though the word "argument" is commonly used to describe a quarrel or disagreement, it also has a positive meaning—it's a series of statements intended to persuade others. In this chapter, when we use the term *logical argument*, we're referring to a coherent set of statements that provide a position and support for that position based on information and facts, not just emotions.

This is important for two reasons. First, you build logical arguments every day: when you talk to your team about duties; when you talk to your boss about your workload and schedules; and when you sort out how best to accomplish the mission. If you build strong arguments, things are more likely to work out the way you think they should. Second, others are aiming arguments at you every day and many of these arguments fail logically. If you understand how arguments are constructed and where they go wrong, you're less likely to buy into a failed logic.

Elements of a Logical Argument

Different textbooks have different terms and approaches to describe logical arguments. This chapter uses terminology found in *The Craft of Research*, by Booth, Comb and Williams. Logical arguments contain four elements:

- a claim
- evidence that supports the claim
- warrants linking pieces of evidence to the claim
- qualifications that limit the claim

First we'll describe each of these terms and then we'll illustrate them in a real-life example of an argument in the next section. The example will help clarify each point.

The Claim

Your claim is simply your position on an issue, your answer to a controversial question or your recommendation for resolving a problem. In academic writing, a claim is also called a *thesis*.

Evidence That Supports the Claim

By definition, every argument has *evidence* intended to give reasons for your claim. Another term for evidence is *support* ("support" and "evidence" are used interchangeably in this text). The similarity of these terms is clear in their definitions:

> *Evidence* (a noun) is the data by which proof or probability may be based or may be admissible as testimony in a court of law.
>
> *Support*, as a noun, is the information that substantiates a position; as a verb, *support* is the act to furnish evidence for a position.

If a piece of evidence is questionable, it may be attacked as a *sub-claim*. Then, you either have to provide additional evidence to prove the sub-claim is true, or eliminate it from your argument.

Warrants That Link Evidence to the Claim

With every piece of evidence, there are often assumptions, either stated or unstated, that link the evidence to the claim and explain why the evidence is relevant to the argument. These linking statements or concepts are called *warrants.* Warrants are important because they can be potential weaknesses in an argument.

Qualifications That Limit the Claim

Sometimes the argument will have *qualifications*—conditions that limit the claim. You can think of a qualification as a statement you attach to the claim with a big IF statement. We often notice these qualifications as we critically look at the evidence we have and realize its limitations.

Elements of a Logical Argument: An Example

Let's use a real life example of a logical argument to show how the different elements work together. Suppose you're responsible for selecting a guest speaker to teach topic XYZ at a PME school. Ms. Jane Doe spoke last year and you've decided to invite her back. Your boss wants to know your recommendation and your rationale. Guess what? You've just been asked to produce a logical argument

CLAIM: We should invite Ms. Jane Doe to teach topic XYZ at this year's class.

EVIDENCE, item #1: Ms. Doe has spent 26 years working with XYZ and is an expert in this field.

WARRANT, item #1: Spending 26 years of working with XYZ makes her an expert. (Another implied warrant is that we want an expert to teach topic XYZ.)

If someone wanted to attack this bit of evidence, he might ask you to prove the fact that she's spent 26 years in the field—let's see a resume!

If someone wanted to attack the underlying warrant, he may argue that she isn't really an expert—maybe she's been doing an entry-level job for 26 years.

But let's suppose that Ms. Doe is indeed an expert in the field, and this is solid evidence.

EVIDENCE, item #2: Last year's course directors all thought she did an excellent job.

WARRANT, item #2: These people know what they're talking about.

If someone wanted to challenge this evidence, he might ask you to produce letters of recommendation. How enthusiastic are the directors about the job she did?

If someone wanted to attack the underlying warrant, he might question the course directors' judgment. Maybe they were new to the job and didn't know much about the topic. Maybe they were TDY during the presentation and were basing their recommendation on what they heard from others.

In this case, let's assume that the course directors are both credible and enthusiastic.

EVIDENCE, item #3: Ms. Doe is a very dynamic lecturer.

WARRANT, item #3: It's good to have a dynamic lecturer.

Recall that evidence you provide to support your claim can be attacked as a sub-claim … and this last bit of evidence looks vulnerable. How do we know that Ms. Doe is a dynamic lecturer? To back it up, you'd have to "support your support" on item #3 with something like this:

SUBCLAIM: Ms. Doe is a very dynamic lecturer.

SUBCLAIM EVIDENCE #1: Students provided five times the amount of feedback than is typical for a lecture.

SUBCLAIM WARRANT #1: Student interest is proportional to volume of feedback.

SUBCLAIM EVIDENCE #2: Ninety-two percent of feedback was very favorable and 8 percent was very unfavorable.

SUBCLAIM WARRANT #2: Polarized feedback implies a dynamic lecture.

Well, this additional information really does back up the fact that Ms. Doe is a dynamic lecturer, but it also indicates her views are controversial—8 percent of the student population really didn't like her presentation. You may believe that your school's goal is education and not to make every student happy, but you might qualify your claim with the following "IF" statement:

QUALIFICATION:

Ms. Jane Doe should be invited back to teach topic XYZ
IF
it is acceptable to have a controversial speaker at the school.

Evidence: Proving Your Point

As you see, individual pieces of evidence are used to build your argument. In this section, we identify some common types of evidence as well as approaches to help explain your ideas to your audience.

- A ***definition*** is a precise meaning or significance of a word or phrase. In an argument, it can be helpful to establish a common frame of reference for important or ambiguous words, so don't underestimate the importance of definitions.
- An ***example*** is a specific instance chosen to represent a larger fact in order to clarify an abstract idea or support a claim. Good examples must be appropriate, brief and attention arresting. Quite often they are presented in groups of two or three for impact.
- ***Testimony*** uses the comments of recognized authorities to support your claim. These comments can be direct quotations or paraphrases, but direct quotations tend to carry more weight with listeners or readers. When using testimony as support, make sure the individuals being quoted are both generally credible—no unknown relatives or convicted felons, please—and knowledgeable in the field under discussion.
- ***Statistics*** provide a summary of data that allows your audience to better interpret quantitative information. Statistics can be very persuasive and provide excellent support if handled competently. Keep them simple and easy to read and understand. Also,

remember to round off your statistics whenever possible and document the exact source of your statistics.

The persuasive power of statistics means that you need to be particularly careful to use them properly. Many people will put blind trust in numbers and fall prey to people or papers that spout numbers or statistical proof. (Ironically, people who work with numbers for a living are the most cautious about trusting someone else's statistics!).

Always, always examine the basic assumption(s) on which the analysis rests. Some of the most compelling statistical arguments turn out to be intricate sand castles built on a foundation of shaky assumptions. The math may be technically correct, but the assumptions can't stand up to scrutiny.

In their book *Writing Arguments*, John Ramage, John Bean, and June Johnson define a *fact* as a noncontroversial piece of data that can be confirmed by observation or by talking to communally accepted authorities. The authors distinguish a fact from an *inference*, which is an interpretation or explanation of the facts that may be reasonably doubted. They recommend that writers distinguish facts from inferences and handle inferences as testimony. Definitions, testimony, statistics and facts provide data that you can use to construct an argument. This next category—*explanation*—can also be helpful in supporting your ideas.

- ***Explanation*** makes a point plain or understandable or gives the cause of some effect. It can be used to clarify your position or provide additional evidence to help make your case. The following three techniques can be used as part of an explanation:
- ***Analysis*:** The separation of a whole into smaller pieces for further study; clarifying a complex issue by examining one piece at a time.
- ***Comparison and Contrast:*** *Comparison* and *Contrast* are birds of similar feather. Use comparison to dramatize similarities between two objects or situations and contrast to emphasize differences.
- ***Description*:** To tell about in detail, to paint a picture with words—typically more personal and subjective than definition.

Characteristics of Good Supporting Evidence

There are two kinds of truth. There are real truths and there are made-up truths.

–Marion Barry
(As Mayor of Washington, D.C., after his arrest for drug use.)

Though different professions and academic fields have their own standards of what is "good" evidence, there are some common characteristics to consider.

Trust

Is the information from an authoritative, trustworthy source? Will your audience trust this source and should you? In the previous chapter we stressed the importance of being cautious with Internet sites, but you should be wary of any source's credibility. Also, remember that it's

better to refer back to original material than rely on someone else's interpretation of existing work since people and their research are often misquoted.

Accuracy

Is the information accurate and free from error? Check and recheck your facts—errors can seriously damage your credibility. Critically evaluate your sources and if you're uncertain about your facts, be honest with your audience. You can increase your confidence in the accuracy of your information by using multiple sources to confirm key facts.

Precision

Is your information appropriately precise? When we talk about "precision," we mean the information should be specified within appropriately narrow limits. The level of required precision will vary with the topic being discussed. Describing regulations for uniform wear may require a precision of fractions of an inch and telling someone that his operational specialty badge should be in the middle of their shirt or within a meter of his belt buckle is not adequately precise. On the other hand, when reporting on the designated mean point of impact for munitions, a measurement in meters or feet would be an appropriate level of precision.

When talking about some subset of a group, explain how many or what percentage of the total you're talking about. If you find yourself constantly using qualifiers like "some, most, many, almost, usually, frequently, rarely…" you probably need to find some convincing statistics to help you make your case.

Relevance

Is your evidence relevant? Evidence can be authoritative, accurate and precise, yet still be totally irrelevant. Don't shove in interesting facts that have nothing to do with the claim; help the reader understand the relevance of your material by explaining its significance. Explain charts, graphs and figures and use transitions in your writing to "connect the dots" for the reader.

Sufficiency

Is your evidence sufficient to support your claim and representative of the whole situation or group? If you are trying to form some conclusions about a situation or group, you need data that represents the complete situation. For example, if you were trying to form conclusions about the overall military population, you would want to gather evidence from all services, not just one career field in one service. If you find that your evidence is either not representative or not sufficient, you need to find more evidence, limit the claim to what you can prove or qualify your claim. You may have to let go of evidence that doesn't fit or data that is no longer current.

Logical Errors: Flawed Arguments

Many people would sooner die than think—in fact, they do so.

–Bertrand Russell

Some of you may have studied formal logic in school. These classes used a lot of complex language and theory to describe what makes an argument "good" or "bad." Unfortunately, many

real-life arguments outside of math and engineering are more "squishy" … and sometimes it's hard to draw a diagram or write an equation to explain exactly what's wrong.

Common errors in reasoning are called *informal fallacies.* They are called "informal" fallacies because they're harder to pin down than some of the "formal" errors in logic. Still, you see them around you every day—especially in advertising, talk radio or political debates. Keep them out of your staff work and learn to identify them in others.

The *informal fallacies* below have been grouped into categories that make sense to the editors, but there's no universally accepted approach to categorizing them. Also note that labeling something as a fallacy requires some judgment—after all, many of these are "gray areas."

Asserted Conclusion

An **asserted conclusion** is the practice of slipping in an assertion and passing it off as a fact. There are two variations of asserted conclusions: circular reasoning and loaded questions.

> **Circular reasoning** (also known as **begging the question**) involves rewording your claim and trying to use it as evidence, usually with a lot of other "filler sentences" designed to confuse the other person. This is popular in advertising where different versions of the claim are repeated over and over again. If the advertisers have their way, you may not notice that the "support" merely restates the claim using different words—a textbook case of circular reasoning. After a while, it's easy to forget there's absolutely no support there at all.
>
> **CLAIM**: "Hey guys! Drink Energy Drink X and you'll be great at sports!"
>
> **SUPPORT:**
>
> - "Great athletes are alert and energized—Energy Drink X keeps you alert and gives you energy to perform!"
> - "You'll have many good looking and physically fit friends!"
>
> A **Loaded question** has an assertion embedded in it—it's another form of an asserted conclusion. One example of a loaded question is "Do you think John Smith is going to improve his rude behavior?" The phrasing of the question itself implies that John has behaved poorly in the past—regardless of how you answer the question. "When are we going to stop sinking money on this expensive program?" has an embedded assumption: the money we've spent to date hasn't been effective.

Sometimes an arguer will assert a conclusion and then challenge someone else to disprove it. The best defense is to ask him or her to prove their claim. "How do you know these programs are effective?" puts the listener on the defensive. The proper response would be, "How do you know the programs are not effective?" Those who assert should have the burden of proof.

2. Character Attack

The classic name for a **character attack** is the **ad hominem** fallacy (in Latin, *Ad Hominem* means "to the man"). Character attacks are also sometimes called **poisoning the well**. A character attack involves an assault on your opponent as an individual, instead of his or her position. It's very common in political advertisements, but you see it in the workplace as well. Here are some examples:

- "Mr. Smith is a tax and spend liberal who voted himself a pay raise last year." (Depending on the topic being discussed, this may be irrelevant to the core of the debate).
- "That guy is an egotistical windbag—what would he know about A-76 contract transitions?" (He may know a lot—his personality is irrelevant to the issue).

3. Emotional Appeals

Emotional appeals try to persuade the heart, not the head. Though emotion plays a role in persuasion, when emotion replaces reasoning in an argument, you've committed a foul. Often arguers attempt to appeal to our emotions in an argument through biased language, vivid language and stirring symbols. They may try to persuade us using "character" issues such as glowing testimonials from popular but non-credible sources. Here are some examples of logical fallacies in this area:

Emotional appeal (to force):

These arguments target the audience's fear of punishment. What characterizes these examples as fallacies is that they make no attempt to persuade using anything other than pressure.

- "Keep this quiet, or I'll implicate you in my wrongdoing."
- "Give me your lunch money, or I'll give you a busted lip."

Emotional appeal (to pity):

This is an argument that targets the audience's compassion and concern for others. Though most people would agree that ethics and values should be part of the decision-making process, an appeal solely to emotion, even a positive one, can be dangerous and misguided.

- "You can't give me a D on this paper—I'll lose my tuition assistance!"
- "We've got to stop the warlords—look at the poor, starving people on the news!"

Emotional appeal (to popularity or tradition):

- *Stirring Symbols*: Using a powerful symbol or attractive label to build support.
  - "I stand before our nation's flag to announce my run for President…."
  - "Good management principles demand we take this course of action."
- *Bandwagon Appeal:* Using peer pressure to build support.
  - "It must be right—everybody else thinks so."
  - "Buy the Ford Escort; it's the world's #1 best seller."
  - "Every good fighter pilot knows…."
- *Precedent as sole support*: Using custom as the only justification for a decision.
  - "It must be right—we've always done it that way."
  - "The Royal Air Force has found the procedure very useful and we should try it."
  - "The last three commanders supported this policy and that's good enough for me."

4. False Authority

False authority is a fallacy tied to accepting facts based on the opinion of an unqualified authority. The Air Force is chock-full of people who, because of their position or authority in one field, are quoted on subjects in other fields for which they have limited or no expertise. Don't be swayed (or try to sway someone else).

A false authority variant is called the **primacy-of-print** fallacy, where facts are believed because they are published in a book, periodical or on a website. Be as skeptical and thoughtfully critical of the printed word as you are of the spoken word.

5. False cause

False cause (also known as the **Post Hoc fallacy**) occurs when you assume one event causes a second event merely because it precedes the second event. Many people observe that Event B occurred after Event A and conclude that A caused B. This is not necessarily true—maybe a third factor, Event C, caused both A and B. Consider the following example:

Event A = At Base X, "Retreat" plays over the intercom at 1635 each day.

Event B = At Base X, outbound traffic increases at the gate at 1640 each day.

There is a statistical *correlation* between these two events: if Event A happens, Event B is more likely to happen and vice versa. Does that mean A causes B? Not necessarily—possibly a third event may "cause" both A and B:

Event C = At Base X the official duty day ends at 1630 for much of the workforce.

6. Single Cause

A **single cause** fallacy occurs when you assume there is a single cause for an outcome, when in fact multiple causes exist.

Let's consider a real-life example of a single cause fallacy. Suppose you're very physically fit, and in a few months you'll take a fitness test. You can't run due to an injury so you are required to walk a certain distance while having your heart rate measured. You've set a goal to score in the top 10 percent for your age group—an "excellent" rating. You know that a disciplined exercise program will cause you to improve your score, but is it this simple?

Event A = disciplined, intense exercise program CAUSES
Event B = excellent score on the fitness test

People who've had trouble with similar fitness tests would be quick to point out that cause and effect may be a little more complicated in this case:

Event A = disciplined, intense exercise program;
Event B = genetically low resting heart rate;
Event C = no caffeine or nervousness about the test; CAUSES
Event D = excellent score on the fitness test

On the other hand, people who have the genetically low heart rate and nerves of steel may think an excellent rating has a single cause because they've never had to deal with the other ones.

7. Faulty Analogy

The **faulty analogy** is very common. Though we often make analogies to make a point, sometimes they go astray—there's something about the comparison that isn't relevant. A faulty analogy implies that because two things are alike in one way, they are alike in all the ways that matter. It can be thought of as one example of a **non sequitur** fallacy (see item 11) such as in this example:

"Leading a coalition is just like leading a squadron."

Well, not exactly. Leadership is required in both situations, but leading a coalition requires technical expertise as well as the ability to work with people from other services and countries; it requires great communication skills, tact, and diplomacy. Leading an Air Force squadron requires a high level of technical proficiency but this does not ensure success leading a coalition.

8. Faulty Dilemma

A **faulty dilemma** implies there is no middle ground between two options. Typically one option is what the speaker prefers and the other option is clearly unacceptable, such as in this example:

"Spend one hour a day reading *The Tongue and Quill* to improve your writing skills … or remain ignorant of writing standards. It's your choice."

Clearly this is a faulty dilemma—it falsely suggests you only have two choices, when you really have many options. Maybe you can read *The Tongue and Quill* once a week or once a month. Maybe you'll find some other way to improve your writing skills—take a class, find a grammar website, get feedback from your boss, etc. Though sometimes life really does give us an "either-or" choice, in most cases we find a considerable range of options between two positions.

9. Hasty Generalization

A **hasty generalization** results when we "jump to conclusions" without enough evidence. A few examples used as proof may not represent the whole.

"I asked three student pilots what they thought of the program and it's obvious that Undergraduate Pilot Training needs an overhaul."

One of the challenges with this fallacy is it's hard to determine how much evidence is "enough" to form a reasonable conclusion. The rules will vary with the situation; more evidence is needed to form a conclusion if the stakes are high. The Food and Drug Administration may require a great deal of evidence before deciding a drug is safe for human use, while SSgt Snuffy may require very little evidence before forming a generalized conclusion about which candy bars should be sold at the snack bar.

10. Non sequitur

Non sequitur is Latin for "it does not follow" and is the generic term for a conclusion that does not necessarily follow from the facts presented. The facts may not be relevant, or there may be some sort of illogical leap made. Several fallacies, such as hasty generalization and faulty analogy, can be thought of as different types of *non sequitur*. For example, "*John Doe will make a great squadron commander because he is an expert in his career field*." This is a *non sequitur* error because it implies strong technical skills equate to the skills needed to command. A similar *non sequitur* argument assumes athletic prowess indicates strong leadership skills.

11. Slippery Slope

The **slippery slope** implies that if we take one small step in an unpleasant or dangerous direction, we'll have to go all the way—like slipping down a hill. Here's an example from *Writing Arguments* by Ramage, Bean and Johnson: "*We don't dare send weapons to Country X. If we do so, next we will send in military advisors, then a Special Forces battalion and then large numbers of troops. Finally, we will be in an all-out war*." Though not every slippery slope argument is false, in some cases we can identify lines that we will not cross. In general, it is best to evaluate each argument on its merits using a foundation of agreed-upon principles.

12. Red Herring

Red herring fallacies occur when an arguer deliberately brings up irrelevant information to get the audience off track. The origins of the "red herring" name are debatable, but the central idea is to divert attention from the topic with content that has no bearing on the outcome.

13. Stacked Evidence

Stacked evidence is the tendency to withhold facts or manipulate support so that the evidence points in only one direction. This happens when you gather only the data or opinions that support your position. This may be done deliberately or may occur due to unconscious bias or carelessness. We may not see counterarguments or alternative interpretations of the facts because of our firm belief in our own position, or we just stop gathering information once we we've found enough support to make our case. Even if you decide to push for your favorite interpretation of the data, never stack evidence by misrepresenting or manipulating the basic information. If you decide that you don't want to discuss the opposing viewpoint, you should at least be aware of it, so you can prepare a counterpunch if needed.

14. Straw Man

Straw man is a fallacy where you attack a weaker, grossly simplified version of the opponent's argument rather than directly addressing the argument presented. In effect, you are attacking a "straw man"—the argument that you wished your opponent made, not the one he actually did. The straw man fallacy is popular in political campaigns. For example, suppose a candidate believed that a major goal of prisons should be rehabilitation, not just punishment. An opponent could exploit that with a straw man attack: "*My opponent coddles convicted felons and wants to make life easier behind bars than on the street. Prison should be a deterrent, not a reward for bad behavior*!"

This list of fallacies captures most of the common errors we hear and see daily. Our challenge is to sharpen our professional senses so we can quickly sniff out the rational from the ridiculous and avoid adding to the epidemic of poor reasoning and weak support we encounter around us.

We've all had experience with using logical arguments to persuade someone else. In the middle of such a discussion, you may have asked yourself, "What's my goal—to persuade the other guy and make my case; or to find out the truth and the best answer to the problem?" (This usually comes up when your opponent comes up with a valid point you hadn't considered before.) Ever since the ancient Greeks were walking around in togas, people have struggled with this issue. The next section introduces this tension between truth and persuasion so that you are aware of it in both your arguments and those of others.

Arguments, Truth and Persuasion

> *We believe that argument is a matter not of fist banging or of win-lose debate but of finding, through a process of rational inquiry, the best solution of a problem.*
>
> –John D. Ramage, John C. Bean, and June Johnson

There will always be reasons to use argument as a tool of persuasion—you want your subordinate to win that award, you really need additional funding for your branch and you want your spouse to visit his or her in-laws over the Thanksgiving weekend.

Sometimes in the heat of verbal battle, it's tempting to focus on persuasion and forget about truth. Don't do it. "Integrity First" is one of our Air Force Core Values and you have to look at yourself in the mirror every morning. You don't have to be a doormat, but if you find out about some new information that may change your position, keep an open mind. In most situations, you don't only want your way, you want the best way. Besides, if you pull a fast one and get your way through deception, you've won a battle, but your credibility is shot and you've crippled yourself for future skirmishes.

Other ways to build credibility with your audience include being knowledgeable and fair. Research your topic carefully and take the time to get the facts right. Don't bluff if you don't have an answer, or mislead others about the strength of your support. Consider your audience's values and assumptions when selecting evidence. Make sure you get the easy things right—the spelling of names, significant dates and other details like grammar and punctuation. Demonstrate goodwill in your writing tone—don't be condescending or act superior. If you make a mistake, acknowledge it and move on. Credibility takes a long time to build, but it is invaluable when trying to support your ideas and persuade others.

SUMMARY: In this chapter we covered several topics that should help you support your ideas. We defined a *logical argument* as a set of statements designed to persuade others. Logical arguments have four components:

1. a *claim*—your position on a controversial topic;
2. *evidence* that supports your claim;
3. *warrants* that identify why the evidence is relevant; and
4. *qualifications* that limit the claim.

Your argument is built upon evidence and it should be authoritative, accurate, precise, relevant and adequate to support your claim. As you build or listen to logical arguments, watch out for *logical fallacies*—common mistakes many people make when building an argument. Arguments are everywhere. To write and speak persuasively, it helps to understand how arguments are constructed and where they go wrong. These insights will be helpful as you start to organize and outline your thoughts—the next step of the process.