CHAPTER 1 - PREMISE / ULTIMATE CONCLUSION ARGUMENTS

What You'll Learn in this Chapter

Welcome! In this chapter you'll be learning many things.

You'll learn about recognizing arguments. In particular, you'll learn
- what arguments are, and
- how to recognize arguments by spotting inference indicator expressions, like "therefore" and "because."

You'll learn about analyzing arguments. In particular, you'll learn
- how to identify the important ideas in an argument, ignoring questions and commands, and
- how to diagram arguments composed of one premise and an ultimate conclusion.

You'll learn about evaluating arguments. In particular, you'll learn
- how to evaluate premises,
- how to evaluate inferences,
- how to evaluate an argument composed of one premise and an ultimate conclusion once we've evaluated the premise and the inference in the argument, and
- how our evaluation of an argument should affect our belief in the ultimate conclusion.

You'll learn about constructing arguments. In particular, you'll learn
- how to construct arguments composed of one premise and an ultimate conclusion, and
- how to write passages containing arguments composed of one premise and an ultimate conclusion.

How to Read this Text

As you can see you'll be getting a lot of information here. You'll be getting a lot of information in other chapters, too. In this and future chapters, please don't worry about remembering things! I'll provide you with a summary of the important points as we go along, and I'll give you an outline of what we've covered at the end of each chapter, so there's no need for you to memorize everything. Your only job is to *understand* what we do. (Besides, if you understand what we do, eventually you *will* remember it. But if you *just* remember what we do, you may never understand it.)

To help you to read actively, and so to understand the material more thoroughly, I'll periodically ask you to stop and think. When you see a box like

Stop and Think

please do take a moment, *before you continue reading*, to answer for yourself the questions that I'll pose. This will make the subsequent discussion significantly easier to follow and much more meaningful.

Let's start by learning what arguments are.

What Arguments Are

In everyday life, the word "argument" often refers to a fight. We aren't going to use the word that way. Instead, for our purposes:

- An argument is unit of reasoning that attempts to prove that a certain idea is true by citing other ideas as evidence.
- The idea that the argument tries to prove true is called the "ultimate conclusion." (Sometimes, the ultimate conclusion is just called "the conclusion.") All other important ideas in an argument are offered in support of the ultimate conclusion, but the ultimate conclusion is not offered in support of any other idea. It's where the argument stops. Every argument has exactly one ultimate conclusion.
- Ideas that the argument uses as evidence for the ultimate conclusion, but that the argument assumes to be true without providing proof for them, are called "premises." Every argument has at least one premise because every argument has to start somewhere.
- Intermediate ideas on the way from the premises to the ultimate conclusion are called "subconclusions." The argument gives us reason to believe its subconclusions (which is why they're not premise), but then uses the subconclusions to support other claims (which is why they're not the ultimate conclusion). Some arguments don't have subconclusions, although most do.
- An inference is the connection that holds between a set of ideas, call it "R" for "reason," and another idea, call it "C" for "conclusion," when the truth of the ideas in R is supposed to establish the truth of idea C.

For example, let's consider the following passage:

> "Cheery Soda contains vitamins. This means that Cheery Soda is healthy. Therefore Cheery Soda should be included in school lunches."

This passage is an argument because it's trying to prove that Cheery Soda should be included in school lunches. This makes that claim that Cheery Soda should be included in school lunches the ultimate conclusion of this argument.

> "Cheery Soda contains vitamins. This means that Cheery Soda is healthy. Therefore Cheery Soda should be included in school lunches." Ultimate Conclusion

This argument starts with the claim that Cheery Soda contains vitamins, but the argument doesn't give us reason to believe this claim. Instead, it just assumes that we'll

accept the fact. This makes "Cheery Soda contains vitamins" a premise in the argument.

> "Cheery Soda contains vitamins. This means that Cheery Soda is healthy. Therefore Cheery Soda should be included in school lunches." Premise

The argument uses this premise as evidence for the idea that Cheery Soda is healthy, and then goes on to use the idea that Cheery Soda is healthy as evidence for the idea that Cheery Soda should be included in school lunches. The fact that "Cheery Soda is healthy," is both supported *by* an idea and used as support *for* an idea makes "Cheery Soda is healthy" a subconclusion.

> "Cheery Soda contains vitamins. This means that Cheery Soda is healthy. Therefore Cheery Soda should be included in school lunches." Subconclusion

There are two inferences in this argument. The first is the evidential connection between "Cheery Soda contains vitamins," and "Cheery Soda is healthy." This inference is indicated by the expression "this means that."

> "Cheery Soda contains vitamins. This means that Cheery Soda is healthy. Therefore Cheery Soda should be included in school lunches." First Inference

The second is the evidential connection between "Cheery Soda is healthy" and "Cheery Soda should be included in school lunches." This inference is indicated by the word "therefore."

> "Cheery Soda contains vitamins. This means that Cheery Soda is healthy. Therefore Cheery Soda should be included in school lunches." Second Inference

This will all get much clearer as we go along. For the moment, it's enough to remember that an argument is any attempt to get us to believe something by the force of rational persuasion, as opposed to using threats or promises.

The Four Big Steps (and Starting Small)

We're faced with arguments every day because people are often trying to get us to believe things. Furthermore, we frequently want to convince *other* people that something is true.

Consequently, it would be nice if we could
1) recognize *when* someone is trying to convince us of something,
2) determine *how* this person is trying to convince us,
3) figure out if the person is giving us *good* reasons for the position advanced, and
4) *make* a convincing case for our own position

In short, we want to

1) *recognize* arguments,
2) *analyze* arguments,
3) *evaluate* arguments, and
4) *construct* arguments.

These are the four big steps. We'll be practicing them a lot because we'll be developing a procedure here, a sequence of steps that we can follow in order to understand, evaluate and construct any argument we want, and because procedures are best learned through repetition. That way, they become internalized. Of course, we'll be learning new things as we go along, and we'll always be presented with new arguments, which will keeps things interesting.

Obviously, arguments, and the passages containing them, can be *very* complex and we'll be seeing some pretty complicated ones later on. In fact, by the time we've completed Chapter 6, we'll have covered everything we need to know in order to recognize, analyze, evaluate, or construct *any* argument, however complex and wherever it may appear. For now, though, we'll start with short passages. By enabling us to focus on one thing at a time, without being distracted by unnecessary complexity, these small arguments will allow us isolate and practice specific skills in order to fully master them before progressing.

There is the risk, however, that you might find some of these exercises fairly easy and be tempted to rush through them. Please resist this temptation! Thinking about what you're doing *now*, with short arguments, will help you to internalize the process, and this will make the complex arguments you'll face later on *much* easier to handle. It's a lot like learning to swim. You don't *need* to swim when you're in four feet of water; if you don't want to swim, you can simply stand up and walk to shore. Nevertheless, it's a good idea to *learn how* to swim in four feet of water, and to get completely comfortable with the strokes, *before* the only alternative to swimming is sinking.

Let's take a look at our first example.

Example 1

Step 1 - Recognizing an Argument

We'll try the first step – determining whether or not a passage contains an argument – by considering the following passage:

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."

Stop and Think

Does this passage contain an argument? Ask yourself "Is this passage trying to convince me that something is true by citing other ideas as evidence?"

It seems to me that this passage is trying to prove that there's no need to research items before making a major purchase. It's trying to convince us of this by citing another idea as evidence, so this passage contains an argument.

Of course, this passage might not contain a very *good* argument because it might not being doing a very good job of proving that that there's no need to research items before making a major purchase, but it is *trying* to prove this, and that's what matters.

Inference Indicator Expressions

The most basic way to recognize an argument is to ask ourselves, "Is this passage trying to convince me that something is true?" If so, it's an argument. If not, it isn't.

The bad news is that this question can be difficult to answer. The good news is that there is a short cut that we can use sometimes.

Remember, all arguments try to prove that an idea is true by citing other ideas as evidence. The connection between the evidence and the idea being proven true is an *inference*. Thus, *all arguments have inferences*. In fact, the reverse is true, too. Any passage that contains an inference is an argument, so once we see that a passage contains an inference, we can be certain that it contains an argument as well.

An inference is the mental step that we're supposed to make when we conclude one idea from another (or, later on, when we conclude one idea from a set of other ideas). It's the *space between the two ideas,* so to speak. This means that the inference itself *isn't* an idea that can be written down as a sentence and pointed to in the argument, and sometimes it won't correspond to *anything* we can point to in the passage.

If you want, you can think about an argument like the tracks someone makes when they walk. The ideas in the argument are like the footprints. The premise is the first footprint. The subconclusions are the footprints in the middle. And the ultimate conclusion is the very last footprint. An *inference* between two ideas is the invisible arc that the foot traced as it lifted from one impression and made the next. You can gesture in its overall direction, but you can't exactly *point* to it.

You can also think about inferences as the force between two magnets. In a simple argument, for example, the premise is the first magnet, the ultimate conclusion is the second magnet, and the inference is the force that holds the two together. Just like we can see the magnets, but can only gesture in the general direction of the magnetic force, we can put our fingers on an

argument's premise and ultimate conclusion, but can only indicate where that invisible inference is.

Generally speaking, though, we're tactile creatures. What we can't point to is hard for us to see, which means that inferences can be very difficult to spot. That's often what makes inference identification a tricky thing. *Occasionally*, though, we'll get lucky and inferences will be expressed by the use of certain terms – words we can point a finger at. This means that you can *sometimes* recognize an argument by spotting these special "inference indicator" (or "indicator") expressions.

Stop and Think

Take a look at the passage again:

"Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."

Can you see an inference indicator expression there? Can you identify some word or words that correspond to the evidential connection between the ideas?

Conclusion Indicator Expressions

The inference indicator expression in this argument is "therefore."

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."

This "therefore" shows us that "there's no need to research items before making a major purchase" is supposed to follow from "every advertisement is designed to give the consumer completely accurate and comprehensive information about the product."

Words like "therefore" often indicate that the ideas which follow them are supposed to be *concluded* from other ideas, and for this reason, we'll call words like "therefore" "conclusion indicator expressions." We can think about conclusion indicator expressions like signs that say "Here comes a conclusion!" Here are some of the most common.

Conclusion indicator expressions show that Y is supposed to be *concluded from* X.

"X. Therefore Y."
"X. Thus Y."
"X. Consequently Y."
"X. Hence Y."
"X. So Y."
"X. This goes to show that Y."
"X. It follows that Y."
"X. As a result, Y."
"X. That's why Y."
"X, which implies that Y."
"X, which means that Y."

Because all arguments have inferences, and because inferences are sometimes indicated by conclusion indicator expressions, we can sometimes recognize that a passage contains an argument by noting that it contains reason indicator expressions.

It's *impossible* to overestimate the importance of inference indicator expressions like the conclusion indicator expressions we've just seen! Many of the most common problems that people run into later stem *directly* from their unfamiliarity with the inference indicator expression, so it's important to learn how to recognize and use them.

Now that we've seen that our passage contains an argument, let's analyze it.

Step 2- Analyzing the Argument

The Importance of Analysis

Analyzing an argument enables us to fully understand that it, and we'll want to understand the argument *before* we start evaluating it. There will be ample opportunity later to evaluate the argument, but if we don't take the time to understand the argument first, there's the danger that our assessment of the argument, our agreement or disagreement with it, will be based upon a misinterpretation.

Patiently understanding a position before passing judgment upon it is also the *kind* thing to do. I shudder to think how many fights and hurt feelings could have been avoided if people had only *stopped to understand what the other person was saying before jumping in to disagree. "Listen first and listen well"* is a motto that will serve us admirably in every context. *"Analyze before evaluating,"* is an instance of this motto, and the first rule of good reasoning.

What Ideas Are

We'll begin analyzing an argument by making a list of the important ideas contained in it because these are the ideas that serve as the argument's ultimate conclusion, premises and subconclusions.

For our purposes, ideas are complete thoughts that are either true or false, although we might not know for sure which one it is. (Some books use the word "proposition" instead of "idea," but we'll use the term "idea" because it's more familiar.)

Sentences like

- "Some magazines carry advertisements."
- "No television shows have advertisements," and
- "There were advertisements in ancient Greece."

convey ideas, because the first is true, the second is false, and the third is either true or false, although I'm not sure which.

Of course, *somebody* knows whether or not there were advertisements in ancient Greece, but the sentence would be true or false, and so would express an idea, even if *nobody* knew. "God exists," for instance, asserts an idea because it's either true or false (either God exists or he doesn't) even though one could plausibly argue that nobody knows for sure either way. The same goes for "Cleopatra ate figs for breakfast on her 10^{th} birthday." Maybe she did; maybe she didn't, but *either* she did *or* she didn't and so the sentence expresses an idea.

Subject / Predicate Sentences

Because ideas are either true or false, a test for determining whether or not something expresses an idea is to see whether or not it makes any sense for us to agree or disagree with it. Using this test, we can see that only complete sentences can explicitly express ideas.

Suppose, for instance, that I just say "the advertisement I read this morning." I don't point to any object, so as to imply that the thing to which I'm pointing *is* the advertisement I read this morning. I simply pronounce "the advertisement I read this morning" out of the blue. You could respond to this in many ways. You could ignore me. You could wonder if I'm speaking in code. You could say "What do you mean, 'the advertisement I read this morning?'" But it would, I think, be incoherent for you to respond "No! Wrong!" or "Yes! Right!" "The advertisement I read this morning" said just like that, isn't a complete sentence. It can't be wrong or right and so it doesn't convey an idea, in our sense.

Similarly, if I meet you on the street and say "claims that most vitamins aren't effective," an appropriate rejoinder might be "What on earth are you talking about? You're babbling

again. Go home to bed," but *not* "That's true!" or "That's false!" and so "claims that most vitamins aren't effective," like "the advertisement I read this morning," isn't a complete sentence and doesn't convey an idea.

If we put these two expressions *together* though, we get "The advertisement I read this morning claims that most vitamins aren't effective." This *is* a complete sentence. In fact, it's the simplest kind of complete sentence, containing only a subject ("The advertisement I read this morning") and saying something about the subject ("claims that most vitamins aren't effective"). The part of the sentence that says something about the subject is called the "predicate," so these kind of sentences are, appropriately enough, called "subject / predicate sentences." If I said that the advertisement I read this morning claims that most vitamins aren't effective, it would make perfect sense for you to say "That's right; I read it" or "That's wrong; it's just talking about some vitamins," and so the sentence "The advertisement I read this morning claims that most vitamins aren't effective," conveys an idea – the idea that *the advertisement I read this morning claims that most vitamins aren't effective*.

We won't really concern ourselves here with identification of the subject and the predicate in a sentence, so don't get too concerned about it. Just remember that there are two *minimal conditions* for any sentence that conveys an idea, first, it must mention something (it must have a subject) and second, it must say something about it (it must have a predicate).

<u>The Difference Between Sentences and Ideas</u>

You might be wondering why I haven't said that a sentence *just is* an idea instead of saying that a sentence *conveys* an idea.

It's important to distinguish between sentences and ideas because one sentence can convey multiple ideas. "The company wants to advertise their product on television and it also wants to run some newspaper adds," for instance, conveys the idea that the company wants to advertise their product on television *and* conveys the idea that the company wants to run some newspaper adds."

Not only can one sentence convey multiple ideas, but multiple sentences can convey the same idea, as do "Television commercials are more expensive than newspaper ads" and "Newspaper ads are less expensive than television commercials."

Even more interesting, in a particular context a sentence can convey an idea that's quite different from the literal meaning of the sentence, as when "Well, I've got to hand it to you, Johnson; your proposal is certainly unusual," conveys the idea that Johnson's proposal is really pretty horrible.

Another reason to think about ideas instead of sentences is that we won't always be focusing on sentences. As a rule, the size of the linguistic unit that we can expect to convey the important ideas in an argument will depend upon the size of the argument

itself**.** If an argument is expressed in a *paragraph*, for instance, we can expect *sentences* to convey the ideas that make up the argument. If an argument is expressed in a *chapter*, we can expect *paragraphs* to convey the ideas that make up that argument. If an argument is expressed in a *book*, we can expect *chapters* to convey the ideas that make up that argument. Since we'll be looking at relatively compact arguments in order to learn the technique most efficiently, we'll be focusing on sentences for awhile. In Chapter 6, we'll discuss how to focus on, and summarize, larger passages.

We'll be talking about *all* this later, so you don't need to worry about it too much now. At this point, just get used to distinguishing between a sentence and the idea conveyed by the sentence.

By the way, we'll call any sentence that directly conveys an idea a "statement." This is worth noting because not all sentences are statements, as we'll see.

Identifying the Ultimate Conclusion

Now that we know a bit about ideas, we're ready to start identifying the important ideas in an argument. The *most* important idea in an argument is the ultimate conclusion, the idea that the argument is trying to prove, so we'll always try to identify that first.

Stop and Think

Read over the passage once more:

"Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."

What is the main idea that this argument is trying to get you to believe? What is the ultimate conclusion of this argument?"

The ultimate conclusion here is "there's no need to research items before making a major purchase."

> "Every advertisement is designed to give the consumer completely accurate information about the product. Therefore, [there's no need to research items before making a major purchase.]" **← Ultimate conclusion**

The conclusion indicator expression "therefore" can help us to see this, because – like all conclusion indicator expressions, it works like a sign saying, "Here comes a conclusion!"

> "Every advertisement is designed to give the consumer completely accurate information about the product. Therefore, [there's no need to research items before making a major purchase.]" **← Ultimate conclusion**

(Remember, inference indicator expressions are *incredibly* important.)

Identifying the Other Important Ideas

Our goal is to identify the important ideas in the argument so that we can eventually understand how all of these ideas work together to establish the truth of the ultimate conclusion.

To help ourselves keep track of the important ideas, we'll make a numbered list of them, starting with the ultimate conclusion. Thus, once we've identified the ultimate conclusion we'll write it down and put a "U" (for "ultimate conclusion") next to it, like this:

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."
>
> U 1. There's no need to research items before making a major purchase.

Because the purpose of the argument is to convince us of this, other ideas are important if they help to prove that the ultimate conclusion is true.

Stop and Think

Do you see another important idea in the argument?

"Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."

"Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product" looks like another important idea because it's being given as evidence for the claim that there's no need to research items before making a major purchase. So let's write that idea down in our list, too.

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."
>
> U 1. There's no need to research items before making a major purchase.
> 2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product.

Identifying the Roles of the Important Ideas

Once we've listed the important ideas in the argument, we'll want to identify the argumentative role of these ideas.

As you might remember from our definition of an argument, every idea in an argument is either the ultimate conclusion, the idea that the argument is trying to prove, a premise, the truth of which is assumed for the purposes of the argument, or a subconclusion, the truth of which is supposed to follow from other ideas in the argument (even though it isn't the ultimate conclusion). We've already identified the ultimate conclusion, and since there can be only *one* ultimate conclusion in each argument, the second idea in our list must be a premise or a subconclusion.

In future chapters, we'll determine whether an idea is a premise or a subconclusion, by asking ourselves "Does the argument give us reason to believe this, or does the argument just take it for granted?" If we *aren't* given reasons to believe an idea, it's a premise. If we *are* given reasons to believe an idea, it's a subconclusion.

In this chapter however, all of the arguments will have only two ideas, which means that if we list the ultimate conclusion first, the second idea must be a premise. (It can't be a subconclusion because subconclusions are supported by other ideas and because there aren't any other ideas to support it.) I'll continue to mention subconclusions in this chapter, though, so that they'll be easier to identify in the next chapter, where we *will* be seeing them.

For now, let's note that since this argument doesn't support idea 2 with any evidence, but just expects us to believe it going in, idea 2 is a premise and we'll put a "P" next to it.

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."
>
> U 1. There's no need to research items before making a major purchase.
> P 2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product.

Identifying the Inferences

Once we've identified the argumentative role of the important ideas in an argument, we're in a position to draw in the inferences.

Remember that an inference is the connection that holds between two ideas when one of them is being offered as a reason to believe the other. The ultimate conclusion is supported by reasons, so to identify the inferences we can focus on the ultimate conclusion and ask, "What reason does the argument give us to believe this?" (Again,

inference indicator expressions can *really* help us here, so we should be sure to use them whenever we have them!)

Asking "What reason does the argument give us to think that there's no need to research items before making a major purchase?" we can see that the reason given is idea 2 – the claim that every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. (Once again, the conclusion indicator expression "therefore" can help us to see this.)

> "Every advertisement is designed to give the consumer completely accurate information about the product. Therefore, there's no need to research items before making a major purchase."
>
> U 1. There's no need to research items before making a major purchase.
> P 2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. **← This is the reason to believe idea 1.**

We will represent inferences by drawing an arrow from the idea offered as evidence to the idea that this evidence is supposed to support. Like this:

> "Every advertisement is designed to give the consumer completely accurate information about the product. Therefore, there's no need to research items before making a major purchase."
>
> 
> U 1. There's no need to research items before making a major purchase.
> P 2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product.

In general, the ultimate conclusion must have at least one arrow pointing *to* it but no arrows pointing *from* it, because it's the main idea that is supposed to be proven by the argument as a whole. It's the cherry on the sundae, so to speak, and once the argument reaches its ultimate conclusion, it stops. Premises, on the other hand, must have arrows going *from* them but no arrows going *to* them. An arrow going to an idea means that the idea is supported by another, but premises are stated without proof; they're where the argument *starts,* so they have no in-coming arrows. We can think of these as "arrow in and out rules."

<u>Diagramming the Argument</u>

Once we've identified the important ideas in an argument, figured out what role each plays, and drawn in the inferences, diagramming the argument is largely a matter of transposition. We simply:

- refer to the ideas by number,
- put the number of the ultimate conclusion at the bottom,

- put the numbers of the premises at the top,
- put the numbers of the subconclusions (if any) in the middle, and
- use arrows to represent the inferences. We'll label the arrows with capital letters to make them easier to refer to later. (Labeling the inferences isn't really necessary, but because it will be handy later on when we're faced with more complicated arguments, we'll get into the habit now.)

Given these conventions, our argument is diagrammed as follows:

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."

U 1. There's no need to research items before making a major purchase.
P 2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product.

2
A ↓
1

If we look at the diagram, we can see that the premise is at the top with no arrow going to it, while the ultimate conclusion is at the bottom with no arrow going from it.

2 ← **Premise**
A ↓
1 ← **Ultimate Conclusion**

Diagrams will always be like this, which means that the role of each idea, and the inferences between the ideas, will always be clear from the diagram. We do not, therefore, need to include this information on our list of ideas, once we've gotten the diagram done. In other words, the "P"s, "U"s, and arrows in the list of ideas are just how we figure out what the diagram *is*, so once we have that diagram, we can get rid of them, if we want to, giving us this:

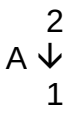
> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."

1. There's no need to research items before making a major purchase.
2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product.

2
A ↓
1

Premise / Ultimate Conclusion Arguments

The diagram we've just considered,



represents the simplest possible argument structure: just one premise, one inference and the ultimate conclusion. We'll call arguments like this "premise / ultimate conclusion" arguments, or "P / U arguments" for short.

For now, all of our arguments will have this structure, but don't worry! The arguments will get more complicated before long. In this chapter, we'll take advantage of the structural simplicity of these arguments to focus on the fundamentals of argument analysis and evaluation.

By the way, it's worth noting that I said premise / ultimate conclusion arguments have the simplest possible *structure*. When I say that these arguments are simple, I mean that their *diagram* is simple, not that their content is simple or that the process of analyzing or evaluating them is simple, so if you find some of these arguments tricky, it doesn't mean that there's something wrong with you. The chemical composition of oxygen is pretty simple, for instance, but *uncovering* that structure certainly *wasn't* simple!

So now that we have our argument analyzed, let's evaluate it.

Step 3- Evaluating the Argument

The Diagram – an Argument's X-Ray

We can think of diagram as an X-ray that exposes the argument's structure. Just like an X-ray allows doctors to diagnose physical problems, the diagram of an argument allows us to diagnose problems in reasoning.

Without the diagram, the most we'd be able to say about an argument is "It looks okay to me," or "It looks pretty sick." And just being able to say *that* isn't very helpful because lots of arguments (like lots of people) really *aren't* okay even though they look like it, and because seeing that an argument looks ill (like seeing that a person looks ill) can't help us decide exactly what's wrong or exactly how to fix it.

The Two Objectives of an Argument

Even with an argument diagrammed, however, it can be difficult to decide whether or not the argument is good before we have some sense of what *makes* an argument good. In order to develop that sense, let's change the subject and discuss something

that's probably more familiar to us: cars. (It's a wise policy, generally speaking, to think about unfamiliar things in terms of familiar things. It helps us to access our intuitions.)

I don't know much about cars, but I do have *some* idea of what makes a car a good car: things like dependability, good gas mileage, and so on. The color of a car, on the other hand, may make the vehicle more or less *desirable*, but it's not the sort of thing that can make it a better or worse *car*, as cars go.

Why do we consider dependability and gas mileage but not color when evaluating a car? It's because a good car is a car that does well what cars are supposed to do, because cars are supposed to transport people efficiently, and because dependability and gas mileage affect how efficiently a car transports people, but the color of a car doesn't.

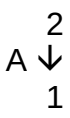
Similarly, applying this insight to arguments, we see that a good argument is an argument that does well whatever an argument is supposed to do, and that when evaluating an argument we should focus on only those aspects of an argument that enable it to do this. But what *is* an argument supposed to do?

Since, as we've seen, an argument is unit of reasoning that attempts to prove that the ultimate conclusion is true, an argument has two jobs. First, it's supposed to establish the truth of its ultimate conclusion. Second, it's supposed to give its audience good reason to think that the ultimate conclusion is true. A good argument does this. A bad argument doesn't, either because it doesn't establish the truth of its ultimate conclusion or because it doesn't give its audience good reason to think that the ultimate conclusion is true. (The difference between establishing the truth of the ultimate conclusion and giving the audience good reason to think that the ultimate conclusion is true will be discussed shortly.)

So let's look at our argument again.

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."

1. There's no need to research items before making a major purchase.
2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product.



Stop and Think

Is this argument good? Does it, in other words, establish the truth of its ultimate conclusion and give its audience good reason to think that the ultimate conclusion is true?

I think that this argument is bad. After all, do you now believe, *honestly believe*, that there's no need to research items before making a major purchase? No, probably not.

(If you decided that the argument is good, you might have been thinking that you could understand someone else believing the ultimate conclusion on the basis of that premise, or something like that. But right now don't think that hard. Just ask yourself "Does this argument convince me that the ultimate conclusion is true? Do I, after reading this, *really believe* that there's no need to research items before making a major purchase?" And I'll bet you don't.)

The fact that this argument hasn't given us reason to believe its ultimate conclusion means that the argument is bad. But why is it bad? What do you think is going wrong with this argument?

Stop and Think

Something about this argument must be preventing it from proving that the ultimate conclusion is true and providing its audience good reason to think that the conclusion is true. What specifically is going wrong with this argument?

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."
>
> 1. There's no need to research items before making a major purchase.
> 2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product.
>
> 2
> A ↓
> 1

It might be tempting to think that this argument is bad because the ultimate conclusion is false. In fact, the ultimate conclusion here *is* false but, strangely enough, we never evaluate the ultimate conclusion of an argument when we evaluate the argument. This is because the central issue is whether or not the argument gives us good reason to believe the ultimate conclusion, not whether or not the ultimate conclusion is actually true. (What's the difference? Well, the conclusion can be true even if the argument doesn't give us good reason to think that it is. We'll talk more about this later.)

So, if the problem with this argument isn't that the ultimate conclusion is false, what is the problem? The problem is that the premise is false. Advertisements aren't designed to give the consumer completely accurate and comprehensive information about the product; they're designed to sell the product, and sometimes don't give the consumer any information about the product *at all*. (The about the last commercial you saw that paired the product with images of popularity, for example. The hope is that you'll identify the product with popularity and so want to buy it – not that you'll learn a bunch of information about the product.)

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."
>
> 1. There's no need to research items before making a major purchase.
> 2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. ← **False**
>
> 2
> A ↓
> 1

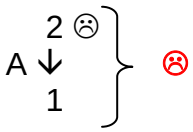
We'll show that the premise is bad by putting a frowning face next to it.

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."
>
> 1. There's no need to research items before making a major purchase.
> 2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product.
>
> 2 ☹
> A ↓
> 1

Since the premises are given as reason for us to believe the ultimate conclusion, and since false premises can't give us reason to believe anything (just like fabricated evidence can't *really* prove that the defendant in a trial is guilty or innocent), a false premise makes the argument bad. We'll show that the argument is bad by putting a frowning face next to the whole thing.

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."

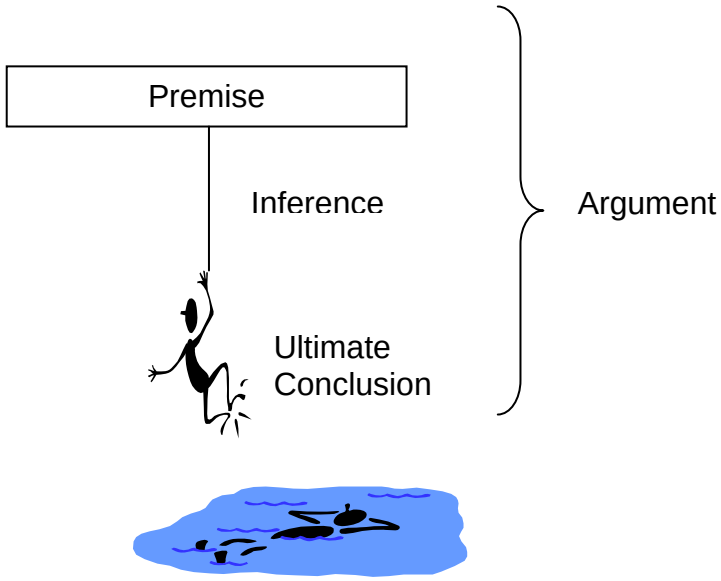
1. There's no need to research items before making a major purchase.
2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product.



Evaluating Premises and The Hanging Man

All this means that a good argument needs true premises, and that the first thing we should do when evaluating an argument is ask ourselves, "Are the premises true?" If a premise isn't true then (with some exceptions that we'll be studying later on), the argument is bad.

When evaluating an argument, it's often helpful to imagine that the ultimate conclusion of a premise / ultimate conclusion argument is a fellow hanging on to a rope suspended from a beam over a pool of water. The beam (what the ultimate conclusion is ultimately depending on) is the premise, and the rope (the connection between the premise and the ultimate conclusion) is the inference. Makes sense, right? The entire argument looks like this:



The goal here is to keep the fellow dry, so an argument is good if it holds the guy up and bad if it lets the guy fall. Obviously, if the beam is rotten then the fellow's in danger of dropping. Accordingly, if the premise is false then the argument is bad too. A good argument needs true premises. This is the first rule of evaluating arguments.

Some people are troubled by this rule. They point out that sometimes we don't *know* whether a premise is true or false, that sometimes premises we *think* are true are *actually* false, and that sometimes premises we think are *false* are actually *true*. These

people worry that such ignorance and error makes it virtually impossible to tell whether or not a premise is true, and if we can't tell whether or not a premise is true then we can't evaluate an argument on the basis of the truth of its premises.

This is a very good point, but things aren't as bleak as they seem as long as we're willing to admit when we don't know something and are happy to acknowledge when we've been wrong. In fact, the ability to admit that we don't know something and the willingness to accept our mistakes are very important *everywhere*. If you don't know something, say, "I don't know," and if you've been mistaken say, "I've been mistaken." Not knowing something isn't so bad; nobody knows everything. Being wrong isn't so bad; everyone is wrong sometimes. But pretending that we know things that we don't know and insisting that we're right when we know we're wrong will bring us *no end* of grief.

If we don't know whether a premise is true or false, we might not be able to decide if the argument is good or bad. If we're mistaken in our assessment of the premise, we may be mistaken in our evaluation of the argument. That's okay. Ignorance and error are part of the human condition. We just need to be honest with ourselves and do the best with what we think we know.

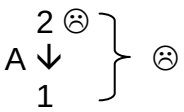
The Ultimate Conclusion

Before we leave this argument, let's pause to remind ourselves that when we evaluated this argument, we did *not* evaluate the ultimate conclusion. In fact, we will never evaluate the ultimate conclusion of an argument when we evaluate the argument itself. This is because the central issue is whether or the argument has given us good reason to believe the ultimate conclusion, and not whether or not the ultimate conclusion is actually true. (Can you see the difference? An argument can give us bad reason to believe something that just happens to be true. We'll be talking about this later.)

Nonetheless, surely we can expect an argument to have *some bearing* upon the conclusion. As a first step in working toward an understanding of what this relationship might be, let's take a look at the argument we just evaluated.

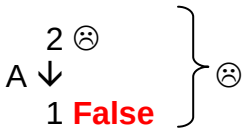
> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."

1. There's no need to research items before making a major purchase.
2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product.



We saw that this argument is bad. And, furthermore, we know that the ultimate conclusion is false.

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."
>
> 1. There's no need to research items before making a major purchase.
> 2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product.



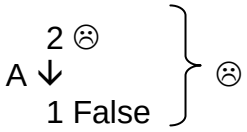
Thus, we've seen that a bad argument can have a false ultimate conclusion. This might not be much of a discovery, but it is something and it takes us part of the way (specifically, one fourth of the way) toward a complete understanding of the relationship between an argument and its ultimate conclusion.

By the way, do you think that a bad argument can have a *true* conclusion? We'll see later. For now, let's summarize what we've learned in this example.

Summary

Congratulations! We've analyzed and evaluated our first argument.

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."
>
> 1. There's no need to research items before making a major purchase.
> 2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product.



This argument has given us a number of skills, including:

Argument recognition skills, specifically

- how to recognize arguments by spotting conclusion indicator expressions, like "therefore"

Argument analysis skills, specifically
- how to identify the ultimate conclusion of an argument
- how to identify other important ideas in the argument
- how to identify the premise in an argument
- how to identify the inference in an argument
- how to diagram a premise / ultimate conclusion argument

Argument evaluation skills, specifically
- that a false premise makes a premise / ultimate conclusion argument bad
- that we never evaluate the ultimate conclusion when we evaluate an argument
- that a bad argument can have a false conclusion

Now let's take a look at another passage.

Example 2

Step 1 - Recognizing an Argument

Let's try the first step again: determining whether or not a passage contains an argument.

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."

Stop and Think

Does this contain an argument? Dos it this passage trying to convince me that something is true by citing other ideas as evidence?"

This passage contains an argument because it's trying to prove that advertisements are designed to get people to buy the product and because it's trying to prove this by citing other ideas as evidence.

(If you thought that this passage doesn't contain an argument you might have been picking up on the fact that this argument isn't very good. Although it does give us reason to believe that advertisements are designed to get people to buy the product, the reason it gives us to believe that is so bad that it might as well not be giving us a reason at all. If you saw this, can you articulate to yourself *why* the reason that the argument gives for its conclusion is bad? We'll be coming back to this later.)

Stop and Think

Look at the passage again:

"Advertisements are designed to get people to buy the product because they are designed to sell the product."

Like the first passage, this passage contains a special word or expression that can help us to recognize that it contains an argument. What is it?

Reason Indicator Expressions

The crucial word here is "because."

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."

This shows us that "advertisements are designed to sell the product" is supposed to establish that "advertisements are designed to get people to buy the product." Words like "because" often indicate that the ideas that follow them are being given as a reason to believe another idea, and so we'll call words like "because" "reason indicator expressions." Reason indicator expressions work like a sign that says, "here comes a reason to believe something else." Here are some of the most common.

Reason indicator expressions show that X is being given as a *reason to believe* Y.

"Because X, Y," or "Y because X."
"Since X, Y," or "Y, since X."
"Given that X, Y" or "Y, given that X."
"Assuming that X, Y" or "Y, assuming that X."
"Inasmuch as X, Y" or "Y, inasmuch as X."
"In view of the fact that X, Y" or "Y, in view of the fact that X."
"Y. The reason is that X"
"Y. After all, X."

Because all arguments have inferences, and because inferences are sometimes indicated by reason indicator expressions, we can sometimes recognize that a passage contains an argument by noting that it contains reason indicator expressions.

Remember, it's important to train yourself to spot inference indicator expressions and to determine whether they introduce a conclusion (and so are conclusion indicator expressions like "therefore") or introduce a reason (and so are reason indicator expressions like "because"). As I mentioned before, I've discovered that when people have serious problems analyzing the more complex arguments later on, the source of their difficulty *very often* (say 90% of the time) lies in an unfamiliarity with and inability to use inference indicator expressions. The time you spend recognizing and using

inference indicator expressions now, when you might not need to rely on them, will save you time and frustration later, when you *will* need to rely on them.

Now that we've seen that our passage contains an argument, let's analyze it.

Step 2- Analyzing the Argument

Identifying the Ultimate Conclusion

Now that we know that this passage contains an argument, we can analyze it. (Remember, we should always take the time to analyze an argument before we evaluate it.) As usual, we'll try to identify the ultimate conclusion first.

Stop and Think

Look at the argument again:

"Advertisements are designed to get people to buy the product because they are designed to sell the product."

What is the ultimate conclusion here? What is the main idea that this argument is trying to get me to believe?

The ultimate conclusion is "advertisements are designed to get people to buy the product."

> **Ultimate conclusion** → "[Advertisements are designed to get people to buy the product] because they are designed to sell the product."

The reason indicator expression "because" can help us to see this, since it indicates that the idea following it, "computers are designed to sell the product," is being given as a reason to believe something else.

> "Advertisements are designed to get people to buy the product because [they are designed to sell the product.]" **← Reason to believe something else**

(And this, by the way, is why "computers are designed to sell the product" can't be the ultimate conclusion of this argument. "Computers are designed to sell the product" follows "because" and so it's being given as a reason to believe something else. The ultimate conclusion of an argument is never being given as a reason to believe anything else, however. It's where the argument stops.)

If "computers are designed to sell the product" is being given as a reason to believe something else, what might that something else be? It can only be the idea that advertisements are designed to get people to buy the product, making that idea the conclusion of this argument.

> **Ultimate conclusion →** "[Advertisements are designed to get people to buy the product] because [they are designed to sell the product.]" **← Reason to believe something else**

With our ultimate conclusion in hand, we can start our list of important ideas as follows:

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."
>
> U 1. Advertisements are designed to get people to buy the product

Identifying the Other Important Ideas

Now that we've identified the ultimate conclusion, we can see what other ideas in this argument are important.

Stop and Think

What are the other important ideas in this argument? What ideas in this argument are used to prove that the ultimate conclusion is true?

"They (i.e. advertisements) are designed to sell the product" looks like another important idea in the argument since the "because" shows that it's being given as reason to believe the ultimate conclusion. So we'll write that idea in our list, too.

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."
>
> U 1. Advertisements are designed to get people to buy the product.
> 2. They (i.e. advertisements) are designed to sell the product.

(Let's stop here for a minute and notice that we divided one sentence into two ideas around the "because." This is okay. In general, we'll want to divide around inference indicator expressions because that will allow us to represent the inference in our diagram. We can't draw an arrow between two ideas, after all, unless we list the ideas separately. We'll discuss all this in greater detail in Chapter 3. For now, we'll just divide sentences around inference indicator expressions as a matter of course.)

Identifying the Role of the Important Ideas

Once again, idea 2 has to be a premise, rather than a subconclusion, because the argument just expects us to take it for granted rather than giving us any reason to believe it. We'll represent that 2 is a premise by putting a "P" next to it.

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."
>
> U 1. Advertisements are designed to get people to buy the product.
> P 2. They (i.e. advertisements) are designed to sell the product.

Identifying the Inferences

The "because" tells us that idea 2 is being given as a reason to believe idea 1 (Remember to use the inference indicator expressions!), so we'll draw an arrow from idea 2 to idea 1, like this:

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."
>
> 
> U 1. Advertisements are designed to get people to buy the product.
> P 2. They (i.e. advertisements) are designed to sell the product.

Double-checking the inferences

Identifying inferences can sometimes be tricky, especially when we start to deal with more structurally complex arguments, so it's always a good idea to double-check our inferences by reading up the arrow (*away* from the arrow head) with a reason indicator expression like "because," and by reading down the arrow (*toward* the arrow head) with a conclusion indicator expression like "therefore." (Again, we might not need to double-check the inferences in the arguments in this chapter, but knowing how to do this will really help us later on, so it's a good idea to get in the habit now.)

I find that it helps to have a favorite reason indicator expression and a favorite conclusion indicator expression to use for this purpose. My favorite reason indicator expression is "because" and my favorite conclusion indicator expression is "therefore" but you can choose whichever terms you please.

For that matter, you don't need to read *both* up *and* down the arrow. If you wish, you may read either up *or* down, but if you're going to read in only one direction, I strongly recommend reading up, with "because" or some other reason indicator expression. For some reason, that direction is better at catching mistakes.

As a word of caution, we shouldn't depend *too* much on this technique because sometimes reading up and down the arrows makes *sense* even though it's not the inference that the author of the argument had in mind. Accordingly, it's always a good idea to check our inferences against the original argument too, but reading up and down the arrows is a very good "first pass" and if our inferences don't make sense when we do this, we can be pretty sure that you made a mistake somewhere.

Double-checking with my favor indicator words, I read up the arrow (away from the arrow head) with "because."

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."

U 1. Advertisements are designed to get people to buy the product.
P 2. They (i.e. advertisements) are designed to sell the product.

This gives me, "Advertisements are designed to get people to buy the product because they are designed to sell the product." Does this make sense? Yes. Does this seem to be what the argument is saying? Absolutely! In fact, it just *is* the argument in its original form.

Reading down the arrow (toward the arrow head) with "therefore," I get "Advertisements are designed to sell the product. Therefore advertisements are designed to get people to buy the product." Does this make sense? Yes. Does this seem to be what the argument is saying? Yes again, so we can be pretty confident that we've gotten the inferences right.

Diagramming the Argument

The argument, then, is diagramed like this:

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."

1. Advertisements are designed to get people to buy the product.
2. They (i.e. advertisements) are designed to sell the product.

2
A ↓
1

An Integrated Process

It's worth noting, now that we've diagrammed two arguments, that the process of analyzing an argument is often much more integrated that I'm making it out to be.

In practice, we frequently recognize the important ideas, identify the argumentative role of the ideas, identify the inferences, and reconstruct the argument at more or less the same time. For example, in the very act of spotting the "because" in the argument that we're examining, we might identify the ultimate conclusion, recognize the other important idea, and understand how the inference runs.

For ease of exposition, I'll continue to treat identifying the important ideas, identifying the argumentative role of the ideas, identifying the inferences, and reconstructing the argument as discrete steps in argument analysis, but I'll be doing this because it enables us to slow the process down enough to discuss it. Just remember that if you find yourself doing more than one of these steps at a time as you analyze arguments on your own, that's a good thing!

Step 3- Evaluating the Argument

Now that we've diagrammed this argument, we're in a position to evaluate it.

Stop and Think

The previous example taught us that we should always ask, of every premise, "Is this true?" So what do you think? Is premise 2, the claim that advertisements are designed to sell the product, true?

I think that premise 2 is true because seems to me that advertisements are designed to sell the product.

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."
>
> 1. Advertisements are designed to get people to buy the product.
> 2. They (i.e. advertisements) are designed to sell the product.
>
> 2 ← **True**
> A ↓
> 1

But is this a good argument? In other words, does it prove that the ultimate conclusion is true and give its audience good reason to believe that the ultimate conclusion is true?

In fact, I don't think this argument proves that the ultimate conclusion is true or give its audience good reason to believe that the ultimate conclusion is true, so It seems to me that this argument is bad even though the premise is true! What's going on?

Stop and Think

What do you think the problem is?

Let's take a look at the argument again.

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."

1. Advertisements are designed to get people to buy the product.
2. They (i.e. advertisements) are designed to sell the product.

2
A ↓
1

This argument is bad because there's something wrong with the premise, even though it's true.

"Advertisements are designed to get people to buy the product because they are designed to sell the product."

1. Advertisements are designed to get people to buy the product.
2. They (i.e. advertisements) are designed to sell the product.

2 ← **Something's wrong here.**
A ↓
1

To see how something can be wrong with a true premise, we should review the two objectives of an argument again.

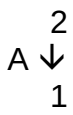
<u>The Two Objectives of an Argument, Again</u>

We've already noted that an argument has two objectives - establishing the truth of its ultimate conclusion and giving its audience good reason to think that the ultimate conclusion is true. And I've already mentioned that these objectives are actually two different things. The fact that these objectives aren't the same may seem strange at first, but it really isn't.

Suppose we lived back in a society where everyone still thought the earth was flat. It's *not* a silly thing to believe, after all. Evidence for a round earth may have been available all along, but evidence for a flat earth is much more apparent. If I put a ball on the floor, it doesn't roll away; I don't always feel like I'm walking downhill if I walk in one direction and like I'm walking uphill if I walk in the other; where I was raised, on the border of Minnesota and North Dakota, you could look in any direction and see a perfectly flat horizon. What better evidence for a flat earth could there be? So even though it's *mistaken* to think that the earth is flat, it isn't necessarily *unreasonable*.

Now suppose that we're invited on a three-year ocean voyage. "Where are you going?" we ask the captain. "West all the way!" he answers. I eagerly suggest that we pack our bags, but you resist. "Because the earth is flat," you say, "going west for three years will lead us to fall off the world!" You've given me an argument that goes like this:

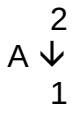
1. Going west for three years will lead us to fall off the world.
2. The earth is flat.



Now it certainly seems to me that, under the circumstances, I should be *convinced* by this argument! I would, after all, have good reason to think that earth is flat and, given that, going west for three years would be *very* unwise. But does your argument prove that going west for three years *really will* lead us to fall off the world? No, because even though I would have good reason to think that the earth is flat, it *really isn't flat*. Here, then, we have an argument that gives its audience good reason to think that its ultimate conclusion is true (because the audience has good reason to think that its premise is true), even though it can't establish the actual truth of its ultimate conclusion (because its premise is factually false).

Contrariwise, an argument can establish the truth of its ultimate conclusion without giving its audience good reason to think that its ultimate conclusion is true. Suppose, for example, that we're still in the society where everyone thinks the earth is flat, and that I try to persuade you take the ocean voyage by saying "We won't fall off the world if we travel straight west for three years, because the earth is round," thereby presenting you with the following argument:

1. We won't fall off the world if we travel straight west for three years.
2. The earth is round.



Does this argument establish the truth of its ultimate conclusion? Yes. As a matter of fact the earth *is* a round and, thanks to this, we don't fall off it by traveling west. Should you be convinced by this argument, though? I hardly think so. After all, in the situation we're envisioning, you have no reason to think that the earth is round. In fact, you have reason to think that it *isn't*, and so you'd hardly suppose that the roundness of the earth would keep us from falling off it. Here, then, we have an argument that establishes the truth of its ultimate conclusion - in part because its premise is true - even though it doesn't give its audience good reason to *think* that its ultimate conclusion is true - because the audience has no reason to believe its premise.

In short, in order to prove that the ultimate conclusion is true, an argument needs premises that are actually true. In order to give its audience good reason to think that the ultimate conclusion is true, an argument needs premises that the majority of its audience believes (with good reason) to be true. And these are separate things.

Evaluating Premises: the Three Questions

Because an argument needs premises that are actually true, in order to prove that the ultimate conclusion is true, and premises that the majority of its audience believes (with good reason) to be true, in order to give its audience good reason to think that the ultimate conclusion is true, there are three questions that we should ask of any premise in order to evaluate it:

1) First we need to ask, "*Is this premise true*?" If the answer to this question is "No" then the premise is bad because false premises can't prove that the ultimate conclusion is true.

2) Second we need to ask, "Would most members of the argument's audience believe this premise?" If the answer to this question is ""No" then the premise is bad because premises that aren't believed by the audience won't convince the audience that the ultimate conclusion is true.

3) Finally we need to ask, "Does the argument's audience have good reason to believe this premise?" If the answer to this question is "No" then the premise is bad because premises that the audience believes *without good reason* can't give the audience good reason to believe the ultimate conclusion. If the audience's belief in the premises of an argument is based upon prejudice, or superstition, or sloppy thinking, for example, and if the audience believes the ultimate conclusion on the basis of believing the premises, then ultimately its belief in the ultimate conclusion will be based upon prejudice, or superstition, or sloppy thing too. In order to give its audience good reason to believe the conclusion, an argument must have premises that the audience has good reason to believe.

There is, of course, quite a bit that could be said about each of these questions. We could focus on question 1 and talk about how we can tell if a premise is true. We could focus on question 3 and talk about what counts as a good reason to believe something. For now, though, let's focus on question 2 and talk about what prevents a premise from being believed by the argument's audience.

Some premises might be unacceptable to a given audience simply because they aren't *comprehensible* to that audience. "The non-dipole field, which constitutes 10% of the earth's total magnetic field, vacillates as a function of the exchange in angular momentum between the earth's mantle and core," might be a premise like this. Other premises, like "The earth is round," might be unacceptable to a certain audience because, although the audience understands it, the audience has good reason to think it false. Most of the time we'll have to use our best judgment to determine who the audience is and whether or not a premise would be believed by that audience.

Luckily for us, however, all audiences have one thing in common, and so one special kind of unacceptability is relatively clear. Because an argument is aimed at getting its audience to believe the ultimate conclusion, we can assume that the argument's

intended audience is always composed of people who don't *already* believe that the ultimate conclusion is true. They don't need to *disbelieve* it; they may have no opinion one way or the other, but *they don't believe it going in*. This means that a good argument needs premises that can be believed by people who don't already believe the ultimate conclusion.

This is important enough to add to our second question, giving us the following list of questions to ask of any premise:

1) "Is this premise true?" If the answer to this question is "No" then the premise is bad because false premises can't prove that the ultimate conclusion is true.
2) "Would most members of the argument's audience believe this premise? *And, in particular, could people who don't already believe the ultimate conclusion of the argument believe that this premise is true?*" If the answer to this question is ""No" then the premise is bad because premises that aren't believed by the audience won't convince the audience that the ultimate conclusion is true.
3) "Does the argument's audience have good reason to believe this premise?" If the answer to this question is "No" then" the premise is bad because premises that the audience believes *without good reason* can't give the audience good reason to believe the ultimate conclusion.

<u>Back to Our Argument</u>

Now we're in a position to understand exactly what's wrong with the premise in our argument.

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."
>
> 1. Advertisements are designed to get people to buy the product.
> 2. They (i.e. advertisements) are designed to sell the product.
>
> 2 ← **Something's wrong here.**
> A ↓
> 1

Although premise 2 is true, most members of the argument's audience, and in particular, people who don't already believe the ultimate conclusion of this argument, couldn't believe it. To see this, ask yourself, "Could someone who doesn't already think that advertisements are designed to sell the product believe that advertisements are designed to get people to buy the product?" And it seems to me that the answer to this question is "No." After all, selling the product and getting people to buy the product are pretty much the same thing. This means that *the only people who could believe the premise of this argument are people who already believe the ultimate conclusion* and so this premise is bad; members of the argument's audience won't believe it.

"Advertisements are designed to get people to buy the product because they are designed to sell the product."

1. Advertisements are designed to get people to buy the product.
2. They (i.e. advertisements) are designed to sell the product.

2 ☹ ← **The audience won't believe this.**
A ↓
1

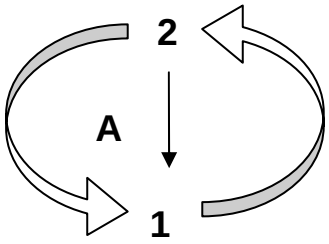
And because premises that the audience won't believe prevent the argument from giving its audience good reason to believe the ultimate conclusion – one of the things that a good argument is supposed to do - this premise makes the entire argument bad.

"Advertisements are designed to get people to buy the product because they are designed to sell the product."

1. Advertisements are designed to get people to buy the product.
2. They (i.e. advertisements) are designed to sell the product.

2 ☹
A ↓ } ☹
1

Arguments like this, which have premises that could be accepted only by people who already believe the ultimate conclusion, are called "*circular arguments*" because they start and end up in the same place. We're supposed to believe 1 because we believe 2. And we believe 2 because we believe 1, which we're supposed to believe on the basis of 2… and 'round and 'round we go.



A Circular Argument

Premises like the one in this argument, which would be believed only by people who already believe the ultimate conclusion, are said to "*assume the conclusion*" or to "*beg the question*."

Circular arguments always have premises that assume the conclusion, and arguments that have premises that assume the conclusion are always circular. Whether we use the expression "circular" or "assumes the conclusion," is just a matter of whether we're

talking about the premises or the argument. If we're talking about the argument, we say "circular." If we're talking about the premise, we say, "assumes the conclusion."

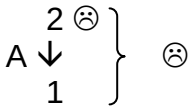
By the way, we've learned that false premises are bad because they prevent an argument from establishing the truth of its ultimate conclusion and that premises that assume the conclusion are bad because they prevent an argument from convincing its audience that the ultimate conclusion is true. All that is right as far as it goes, but does it go far enough? In particular, does a premise that assumes the conclusion prevent the argument from establishing that the ultimate conclusion is true, *as well as* preventing the argument from convincing its audience that the ultimate conclusion is true? Are circular premises doubly bad, in other words?

In fact they are. How can an argument that *presupposes* the truth of its ultimate conclusion possibly hope to *establish* the truth of its ultimate conclusion? It would be like trying to lift yourself off the ground by pulling on the collar of your shirt. Premises that assume the conclusion are just horrible.

<u>The Ultimate Conclusion</u>

Once again, before we leave this argument, let's examine the relationship between the argument and the ultimate conclusion.

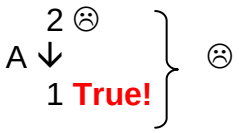
> "Advertisements are designed to get people to buy the product because they are designed to sell the product."
>
> 1. Advertisements are designed to get people to buy the product.
> 2. They (i.e. advertisements) are designed to sell the product.



We saw that this argument is bad. But what about the conclusion?

In fact, I think that the ultimate conclusion of this argument is true!

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."
>
> 1. Advertisements are designed to get people to buy the product.
> 2. They (i.e. advertisements) are designed to sell the product.



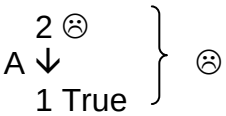
It's very easy to assume that bad arguments must have false conclusions, like the argument we saw in Example 1, but this example shows that assumption to be mistaken. A bad argument can have a false conclusion, and a bad argument can have a true conclusion. In fact, that's exactly what makes bad arguments so bad – they give us absolutely no information about the ultimate conclusion. If we find that an argument is bad, we don't know if the ultimate conclusion is true or false. (And, similarly, if we hear someone criticizing an argument we shouldn't conclude that she agrees or disagrees with the ultimate conclusion. All we know is that she thinks the argument is bad. She might think that the ultimate conclusion is false, or she might think that the ultimate conclusion is true.)

By the way, do you think that the same is true of good arguments? Can a good argument have a true conclusion and a false conclusion? We'll see. For now, let's summarize what we've learned in this example.

Summary

Here's how we analyzed and evaluated our second argument.

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."
>
> 1. Advertisements are designed to get people to buy the product.
> 2. They (i.e. advertisements) are designed to sell the product.



This argument has taught us a number of skills, including:

Argument recognition skills, specifically
- how to recognize arguments by spotting reason indicator expressions, like "because"

Argument analysis skills, specifically
- how to double-check our inferences by reading away from the arrow head with a reason indicator expression and toward the arrow head with a conclusion indicator expression

Argument evaluation skills, specifically
- the three questions to ask of any premise: 1) "Is this premise true?" 2) "Would most members of the argument's audience, including people who don't already believe the ultimate conclusion of the argument, believe this premise?" And 3) "Does the argument's audience have good reason to believe this premise?"
- that a bad argument can have a true conclusion

Now let's take a look at another passage.

Example 3

Step 1 - Recognizing an Argument

As usual, we'll start by deciding if a passage contains an argument.

> "Television advertising is some of the most expensive. There's nothing wrong with tricking people into buying things they don't need."

Stop and Think

Does this passage contain an argument? Is it trying to convince us that something is true by citing other ideas as evidence?

If this passage contained an argument, it would be trying to prove that something is true. And since it only makes two claims, it would be trying to prove that television advertising is some of the most expensive or it would be trying to prove that there's nothing wrong with tricking people into buying things they don't need.

Is it trying to prove either of these things?

On the one hand, if this passage were trying to prove that television advertising is some of the most expensive, the evidence would have to be the claim that there's nothing wrong with tricking people into buying things they don't need. But how can the claim that there's nothing wrong with tricking people into buying things they don't need prove that television advertising is some of the most expensive? I don't see it.

On the other hand, if the passage were trying to prove that there's nothing wrong with tricking people into buying things they don't need, the evidence would have to be the claim that television advertising is some of the most expensive. But how can the claim that television advertising is some of the most expensive show that there's nothing wrong with tricking people into buying things they don't need? Again, I don't see it.

Since this passage is simply making claims, without attempting to prove any of them true, it doesn't contain an argument.

(It's also useful to note, that this point, that the passage doesn't contain any inference indicator expressions, and this is good reason to at least *suspect* that the passage doesn't contain an argument. We can't rely on this too heavily, though, because later on we'll be seeing arguments without inference indicator expressions.)

This is the sort of passage that many people mistakenly think contains an argument, though. Can you guess why?

Two Common Mistakes When it Comes to Recognizing Arguments

1) Disagreement

First, because the word "argument" can mean "disagreement," it's easy, but incorrect, to think that any passage with which someone could disagree must contain an argument. Certainly, someone could disagree with this passage, maintaining that there *is* something wrong with tricking people into buying things they don't need, but the fact that someone could disagree with this passage, and argue against it, doesn't mean that the passage itself *contains* an argument.

2) "Fact" vs. "Opinion"

The second reason someone might mistakenly think that this passage contains an argument, even though it doesn't, (and might mistakenly think that other passages *don't* contain arguments, when in fact they which do) has to do with the distinction between fact and opinion.

Some people would say that this passage contains an argument because it deals with opinion, thinking that arguments can't concern themselves with facts. Other people would sharply disagree, and say that arguments *must* concern themselves with facts and that any passage that traffics in opinion can't be an argument. So, who's right?

Well, what's a fact? Presumably, "Television advertisements are more expensive, per minute, than radio advertisements" and "The chemical composition of water is H_2O" express facts. We're inclined to see them as facts, I think, because we recognize that they are true regardless of whether or not we happen to believe them (television ads can be more expensive than radio ads even if I think otherwise, and my views about water don't change its chemical composition) and because there are relatively objective ways that we can prove them to be true (we can compare advertising costs, for example, or run chemical experiments).

But we should note, at this point, that facts can certainly figure in arguments, both as premises and as conclusions. We might use the fact that television ads are more expensive than radio ads as a reason to believe that we should take out a radio ad, for example, and we can appeal to experimental results to prove that the chemical composition of water is H_2O. Conversely, facts can appear in passages that aren't arguments. "The chemical composition of water is H_2O. The chemical composition of hydrogen peroxide is H_2O_2. And the chemical composition of carbon dioxide is CO_2," for instance, just lists three chemical facts and isn't an argument. In short, we can't conclude that a passage does or does not contain an argument from the presence of facts in the passage; maybe there's an argument there; maybe there isn't.

Now what about opinions? What are they and what is their relationship to arguments? Frequently people use the word "opinion" to describe beliefs that, unlike facts, lack clear-cut objective proof. Some philosophers think that value judgments are like this.

Aesthetic value judgments, like “That advertisement is a work of art,” often can’t be settled to everyone’s satisfaction, and no scientific evidence can conclusively establish an ethical value judgment, like “There’s nothing wrong with tricking people into buying things they don’t need.”

But none of this prevents opinions from properly appearing in arguments, both as premises and as conclusions. I might use my opinion that an advertisement is a work of art as a premise in an argument for the ultimate conclusion that the advertisement deserves museum space, for example; this argument won’t convince people who don’t share my view about the advertisement, of course, but it might convince some people and if my opinion happens to be *true*, it can prove that ultimate conclusion is true. Similarly, I might give an argument for the conclusion that the advertisement is a work of art, and thereby bring more people to share my opinion, so there’s nothing necessarily wrong with opinions showing up in arguments. Conversely, opinions can appear in passages that aren’t arguments. “This advertisement is a work of art. It’s morally wrong to market cigarettes to children. No commercials for alcoholic beverages should be run on television before nine in the evening,” for example, just lists three opinions and isn’t an argument. In short, we can’t conclude that a passage does or does not contain an argument from the presence of opinions in the passage; maybe there’s an argument there; maybe there isn’t.

In general, the “fact” vs. “opinion” distinction isn’t a particularly helpful one for us.

Let’s summarize what we’ve learned from this passage.

Summary

> “Television advertising is some of the most expensive. There’s nothing wrong with tricking people into buying things they don’t need.”

This passage didn’t contain an argument, but it taught us

Argument recognition skills, specifically
- that not every passage with which we can disagree, or argue, contains an argument.
- that the “fact” vs. “opinion” distinction doesn’t really help us much.

Now let’s take a look at another passage.

Example 4

Step 1 - Recognizing an Argument

Consider the following passage:

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."

Stop and Think

Does this contain an argument? Is it trying to convince us that something is true by citing other ideas as evidence?

I think that this passage does contain an argument because it's trying to prove that one idea is true by citing other ideas as evidence. There's an inference indicator in this passage as well, and that can help us to recognize that this passage contains an argument.

Stop and Think

What is word or expression signals the inference in this passage? What is the inference indicator expression here?

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."

The inference indicator expression here is "so."

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."

Stop and Think

Is "so" a conclusion or an reason indicator expression? Does it, in other words, introduce a conclusion (making it a conclusion indicator expression like "therefore") or does it introduce a reason to believe something else (making it a reason indicator expression like "because")?

To determine whether "so" is a conclusion indicator expression or a reason indicator expression, let's replace the "so" with "therefore," then replace the "so" with "because," and see which passage is more like the original.

In this case, we get

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, therefore Cool and Fresh soap must be the best."

and

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, because Cool and Fresh soap must be the best."

Since it seems to me that the first passage is more like the original, "so" is like "therefore" and not like "because." It's a conclusion indicator expression, not a reason indicator expression.

(By the way, this is a nice way to determine whether an inference indicator expression is a conclusion indicator expression or a reason indicator expression. First replace the expression with "therefore;" then replace it with "because," and see which passage is more like the original.)

Step 2- Analyzing the Argument

Identifying the Ultimate Conclusion

Now that we know that this passage contains an argument, we can analyze it. And, as usual, we'll try to identify the ultimate conclusion first.

Stop and Think

What is the ultimate conclusion of this argument?

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."

The ultimate conclusion here is "Cool and Fresh soap must be the best."

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so [Cool and Fresh soap must be the best]." **←Ultimate Conclusion**

The fact that this idea follows a conclusion indicator expression can help us to see this.

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so [Cool and Fresh soap must be the best]." **←Ultimate Conclusion**

Do you see how the "so" also helps us to understand why "This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap" can't be ultimate conclusion of the argument? Because this idea immediately *precedes*

a "so," it's being given as a reason to believe something else. And the ultimate conclusion is never given as a reason to believe anything. It's where the reasoning stops.

> "Are you wondering which brand of soap is the superior product? **Can't be the Ultimate Conclusion →** [This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap], so [Cool and Fresh soap must be the best]." **←Ultimate Conclusion**

With our ultimate conclusion in hand, we can start our list of important ideas as follows:

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."
>
> U 1. Cool and Fresh soap must be the best.

Identifying the Other Important Ideas

We're now ready to make a list of the other important ideas in the argument.

Stop and Think

What are the other important ideas in this argument?

In particular, what should we do with the first sentence, "Are you wondering which brand of soap is the superior product?" Is this important?

And what about the idea "This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap"? Is that important?

Statements vs. Questions

As we've seen, because ideas are either true or false, a test for determining whether or not a sentence expresses an idea is to see whether or not it makes any sense for us to agree or disagree with it. We've agreed to call sentences that convey ideas "statements."

Questions usually don't convey ideas because they usually can't be true or false. If I asked you "Are you wondering which brand of soap is the superior product?" you could answer "No. I'm not wondering which brand of soap is the superior product," but you couldn't really sensibly say "False! That question is false!" Normally, then, questions don't convey ideas at all and so won't be included in our list of important ideas. Let's just ignore the first sentence of this passage.

> "~~Are you wondering which brand of soap is the superior product~~? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."
>
> U 1. Cool and Fresh soap must be the best.

(Will we always be ignoring questions? No. In a subsequent chapter, we'll see special kinds of questions that do in fact convey ideas, but for now we'll be ignoring questions because *normal* questions can't be true or false and because in this chapter we'll only be dealing with normal questions like that.)

Completing our List

Finally, what should we do with the idea "This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap"? Should that go in our list?

I think so. For one thing, if we don't include it, we'll have only one idea – the ultimate conclusion. And if we only have one idea – the ultimate conclusion – we won't have any support for the ultimate conclusion and so won't have an argument. For another thing, this idea is connected to our ultimate conclusion with a "so," which indicates that there will be an inference going from one of these ideas to the other. We definitely want this idea in our list.

> "~~Are you wondering which brand of soap is the superior product~~? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."
>
> U 1. Cool and Fresh soap must be the best.
> 2. This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap.

Identifying the Roles of the Important Ideas

Once again, idea 2 has to be a premise, rather than a subconclusion, because the argument just expects us to take it for granted rather than giving us any reason to believe it. We'll represent that 2 is a premise by putting a "P" next to it.

> "~~Are you wondering which brand of soap is the superior product~~? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."
>
> U 1. Cool and Fresh soap must be the best.
> P 2. This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap.

Identifying the Inferences

The "so" tells us that idea 2 is being given as a reason to believe idea 1, so we'll draw an arrow from idea 2 to idea 1, like this:

> "~~Are you wondering which brand of soap is the superior product~~? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."

U 1. Cool and Fresh soap must be the best.
P 2. This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap.

We can increase our confidence that we've gotten the inference right by double-checking.

Reading up the arrow (*away* from the arrow head) with a reason indicator expression we get, "Cool and Fresh soap must be the best because this magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap."

Reading down the arrow (*toward* the arrow head) with a conclusion indicator expression, we get, "This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap. Therefore Cool and Fresh soap must be the best."

Both of these passages correspond to what the original passage is saying, so we can feel good about our arrow.

(Remember, reading up the arrow with "because" does a better job of catching mistakes than reading down the arrow with "therefore," so if you're only going to test in one direction, test up the arrow with "because." Remember, too, that sometimes reading up and down the arrows makes *sense* even though it's not the inference that the author of the argument had in mind, and so it's always a good idea to check our inferences against the original argument.)

Diagramming the Argument

This argument, therefore, is diagramed as follows:

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."

1. Cool and Fresh soap must be the best.
2. This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap.

2
A ↓
1

And we're now in a position to evaluate it.

Step 3 - Evaluating the Argument

We've learned to evaluate premises by asking ourselves the following questions:

1) "Is this premise true?"
2) "Would most members of the argument's audience, including people who don't already believe the ultimate conclusion of the argument, believe this premise?"
3) "Does the argument's audience have good reason to believe this premise?"

Stop and Think

Go back and look at the premise in the argument. Evaluate it by answering those three questions.

The premise in this argument states, "This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap." Of course we're not looking at the magazine ad right now, but I think we can grant that that the premise is true. Furthermore, it seems as though people can believe that the premise is true without already believing the ultimate conclusion, and that they could easily have good reason to believe the premise, so I'd say that the premise in this argument is fine.

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."
>
> 1. Cool and Fresh soap must be the best.
> 2. This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap.
>
> 2 ☺
> A ↓
> 1

But, is this a *good argument?* Does it, in other words, prove that the ultimate conclusion is true and give its audience good reason to believe that the ultimate conclusion is true?

Stop and Think

Look at the argument again. Is it a good argument? Does it both establish that the ultimate conclusion is true and give its audience good reason to believe that the ultimate conclusion is true?

In fact, I think that this is a very bad argument. It doesn't establish that Cool and Fresh soap is the best and it doesn't give us good reason to believe that it is. But why not? What's wrong?

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."
>
> 1. Cool and Fresh soap must be the best.
> 2. This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap.
>
> 2 ☺
> A ↓
> 1

Evaluating Inferences

The problem with this argument lies at the inference.

An inference, remember, is the connection that holds between two ideas when the truth of one of them (in this case, idea 2) is supposed to establish the truth of the other (in this case, idea 1).

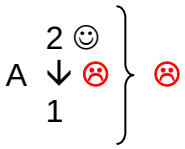
Idea 2 in this argument doesn't establish the truth of idea 1. The fact that a magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap (idea 2) doesn't prove that Cool and Fresh soap is the best (idea 1) because a photograph and some dialogue doesn't establish that there's any documented causal relationship between Cool and Fresh soap and strong performance on the job. (And, even if there *were* such a relationship, it wouldn't be enough to prove that Cool and Fresh soap is the best since many other soaps might have the same result, since Cool and Fresh soap could have nasty side effects, and so on.)

In short, the connection between the premise and conclusion here isn't very strong. If idea 2 were one magnet and idea 1 another, the force between them would be rather weak. The inference in this argument is pretty bad.

We'll indicate that the inference is bad by putting a frowning face next to arrow A in our diagram. And since the badness of this inference ruins the entire argument, we'll put a frowning face next to the entire argument as well.

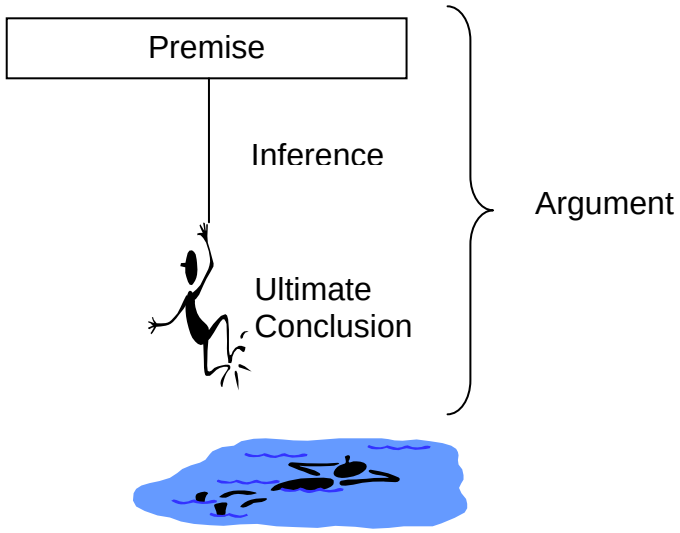
"Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."

1. Cool and Fresh soap must be the best.
2. This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap.



Evaluating Inferences and The Hanging Man

As we've seen, it's often helpful to imagine that the ultimate conclusion of a premise / ultimate conclusion argument is a fellow hanging on to a rope suspended from a beam over a pool of water. The beam (what the ultimate conclusion is ultimately depending on) is the premise, and the rope (the connection between the premise and the ultimate conclusion) is the inference.



The goal here is to keep the fellow dry, so an argument is good if it holds the guy up and bad if it lets the guy fall.

Examples 1 and 2 showed us that if the beam is rotten (because the premise false, because the argument's audience doesn't believe it, or because the argument's audience doesn't have good reason to believe it) the fellow splashes down and the argument is bad.

Now we've learned that if the rope is frayed, because the inference is weak, it will snap

and the fellow will fall, making the argument bad. Accordingly, if the inference is weak then the argument is bad too. A good argument needs good inferences.

Inferences and Premises are Very Different Things

The Hanging Man model can also help us to remember that premises and inferences are very different things.

Nobody would suppose that a rope is strong simply because it's hanging from a good beam. A weak rope can hang from a strong beam. Similarly, we shouldn't think that an inference is good just because the premise above it is. A *bad* inference can run from a *good* premise. The argument we've just considered is like this.

Stop and Think

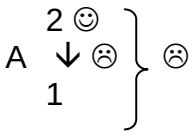
Is the converse true, too? Can a good inference run from a bad premise?

We'll see what the answer is to this question later. For now, let's summarize this example.

Summary

Here's how we analyzed and evaluated the fourth example.

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."
>
> 1. Cool and Fresh soap must be the best.
> 2. This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap.



This argument has taught us:

Argument analysis skills, specifically

- how to determine whether an inference indicator expression is a conclusion indicator expression or a reason indicator expression by first replacing it with "therefore," then replacing it with "because," and seeing which passage is more like the original
- that questions don't convey ideas and so are usually omitted from our list of important ideas

Argument evaluation skills, specifically

- that an good argument needs good inferences
- that inferences and premise are very different things

Now let's take a look at the next passage.

Example 5

Step 1 - Recognizing an Argument

Take a look at the following passage:

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"

Stop and Think

Does this passage contain an argument? Is it trying to convince us that something is true by citing other ideas as evidence?

I'd say that this passage contains an argument because it's trying to prove that one idea is true by citing other ideas as evidence. There's an inference indicator in this passage that might help us to see this.

Stop and Think

Look at the passage again. What's the inference indicator expression in that passage?

"Since" is the inference indicator here.

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"

Now, is "since" a conclusion or an inference indicator expression? Does it, in other words, introduce a conclusion (making it a conclusion indicator expression like "therefore") or does it introduce a reason to believe something else (making it a reason indicator expression like "because").

Stop and Think

Is “since” a conclusion indicator expression or a reason indicator expression?

Hint: Replace “since” with “therefore” and “because” and see which passage is more like the original. If the passage with “therefore” is more like the original, then “since” is a conclusion indicator expression like “therefore.” If the passage with “because” is more like the original, then “since” is a conclusion indicator expression like “because.”

We’ll decide if “since” is a conclusion indicator expression or reason indicator expression by first replacing the “since” with “therefore,” then replacing the “since” with “because,” and seeing which passage sounds more like the original.

Here’s the original:

> “Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer’s I.Q. by an average of 5 points. Imagine that!”

Here’s what we get when we replace “since” with “therefore”:

> “Commercials are a boon for students everywhere, therefore studies have shown that each commercial watched safely and permanently increases the viewer’s I.Q. by an average of 5 points. Imagine that!”

And here’s what we get when we replace “since” with “because”:

> “Commercials are a boon for students everywhere, because studies have shown that each commercial watched safely and permanently increases the viewer’s I.Q. by an average of 5 points. Imagine that!”

It seems to me that the second passage is more like the original, which means that “since” is more like “because.” It’s a reason indicator expression.

Recognizing that “since” is a reason indicator expression should help us to analyze this argument.

Step 2- Analyzing the Argument

Identifying the Ultimate Conclusion

As usual, we’ll begin our analysis of the argument by trying to identify the ultimate conclusion.

Stop and Think

What is the ultimate conclusion of this argument?

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"

The ultimate conclusion here is "Commercials are a boon for students everywhere."

> **Ultimate conclusion →** "[Commercials are a boon for students everywhere], since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"

The reason indicator expression "since" can help us to identify the ultimate conclusion because it tells us that "studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points" is being given as a reason to believe "Commercials are a boon for students everywhere."

> **Ultimate conclusion →** "[Commercials are a boon for students everywhere], since [studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.] **← Reason to believe** Imagine that!"

Do you see how the "since" also helps us to understand why "studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points" can't be ultimate conclusion of the argument? Because this idea immediately follows a "since," it's being given as a reason to believe something else. And the ultimate conclusion is never given as a reason to believe anything. It's where the reasoning stops.

> **Ultimate conclusion →** "[Commercials are a boon for students everywhere], since [studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.] **← Reason to believe (and so can't be the ultimate conclusion)** Imagine that!"

With our ultimate conclusion in hand, we can start our list of important ideas as follows:

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"
>
> U 1. Commercials are a boon for students everywhere

Identifying the Other Important Ideas

Now we're ready to make a list of the other important ideas in the argument.

Stop and Think

What other ideas in this passage are important?

In particular, what should we do with the idea "studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points"? Should that go in our list?

And what about the last sentence, "Imagine that!" Should that go in?

The idea "studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points" is definitely important. I know this because it's connected to the ultimate conclusion with a "since." This shows that that there will be an inference going from one of these ideas to the other. We certainly want this idea in our list.

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"
>
> U 1. Commercials are a boon for students everywhere.
> 2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.

Statements vs. Commands

But what about the last sentence, "Imagine that!"? Should this go in our list?

As we've seen, because ideas are either true or false, a test for determining whether or not a sentence expresses an idea is to see whether or not it makes any sense for us to agree or disagree with it. We've agreed to call sentences that convey ideas (sentences like "Commercials make us smarter") "statements."

We've seen that questions (like "What is the evidence for that?") can't be true or false and so don't convey ideas.

Sentences that tell us to do something, like "Buy this product," and "Please change the channel" can't be true or false either, since it wouldn't make much sense for you to say "False!" if I said "Buy this product" or "Please change the channel." (Of course, you could refuse to *obey* me, but that's not the same as saying that my order or request is false.) We'll call these kinds of sentences "commands." Normally commands don't

convey ideas at all and so won't be included in our list of important ideas. Let's just ignore the last sentence of this passage.

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. ~~Imagine that~~!"
>
> U 1. Commercials are a boon for students everywhere.
> 2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.

(Will we always be ignoring commands? No. As with questions, in a subsequent chapter we'll see special kinds of commands that do in fact convey ideas, but for now we'll be ignoring commands because *normal* commands can't be true or false and because in this chapter we'll only be dealing with normal commands like that.)

Identifying the Roles of the Important Ideas

Now that we have our list of ideas, we can determine what role each plays. And once again, idea 2 has to be a premise, rather than a subconclusion, because the argument just expects us to take it for granted instead of giving us any reason to believe it. We'll show that 2 is a premise by putting a "P" next to it.

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. ~~Imagine that~~!"
>
> U 1. Commercials are a boon for students everywhere.
> P 2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.

Identifying the Inferences

The "since" tells us that idea 2 is being given as a reason to believe idea 1, so we'll draw an arrow from idea 2 to idea 1, like this:

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. ~~Imagine that~~!"
>
> 
> U 1. Commercials are a boon for students everywhere.
> P 2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.

We can increase our confidence that we've gotten the inference right by double-checking.

Reading up the arrow (*away* from the arrow head) with a reason indicator expression we get "Commercials are a boon for students everywhere because studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points."

Reading down the arrow (*toward* the arrow head) with a conclusion indicator expression, we get "Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Therefore commercials are a boon for students everywhere."

Both of these passages make sense and seem to correspond to what the original passage is saying, so we can feel good about our arrow.

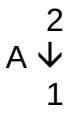
(Remember, reading up the arrow with "because" does a better job of catching mistakes than reading down the arrow with "therefore," and it's always a good idea to check our inferences against the original passage too.)

Diagramming the Argument

This argument, therefore, is diagramed like so:

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"

1. Commercials are a boon for students everywhere..
2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.



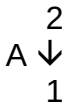
We're now ready to evaluate this argument.

Step 3 - Evaluating the Argument

Here's the argument, all diagrammed and prepared to be assessed:

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"

1. Commercials are a boon for students everywhere..
2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.



Let's start by looking at the premise.

Stop and Think

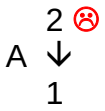
Is this premise good or bad? Why?

Hint: Remember to ask yourself the three premise-evaluation questions:
1) "Is this premise true?"
2) "Would most members of the argument's audience, including people who don't already believe the ultimate conclusion of the argument, believe this premise?"
3) "Does the argument's audience have good reason to believe this premise?"

I'd say that this premise is bad because it's false. (At least I strongly *suspect* that it's false.)

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"

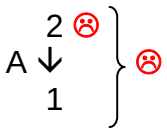
1. Commercials are a boon for students everywhere.
2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. ← **False**



And this is enough to make the entire argument bad.

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"

1. Commercials are a boon for students everywhere.
2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. ← **False**



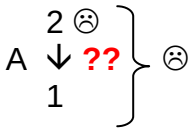
But even though this argument is bad, I want to talk about it some more. In particular, I want us to examine that inference because evaluating inferences can be tricky.

Stop and Think

Take a look at the inference in this argument. What do you think of it? Do you think that the connection between ideas 2 and 1 is strong? Do you think that the truth of 2 would establish the truth of 1?

What did you decide about the inference?

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"
>
> 1. Commercials are a boon for students everywhere.
> 2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.



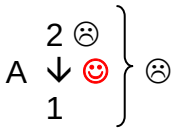
It's very tempting to say that this inference is bad, thinking that since idea 2 is *false* it can't establish the truth of 1. But this way of thinking is mistaken because it doesn't really focus on the inference. It focuses on the premise instead, and inferences are not premises.

An inference is the *connection* between a reason and the conclusion that supposedly follows from it, so when we evaluate an inference we should think about that connection, rather than about the reason or the conclusion themselves. And looking at the connection between 2 and 1, we can see that it's amazingly strong because *if 2 were true* (we know that it *isn't* true, but *if it were*) then 1 would probably be true as well.

Since inference A is pretty good, I'll give it a smiley face.

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"

1. Commercials are a boon for students everywhere.
2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.



The argument is still *bad*, of course, because the premise is still bad. An argument is good only if it establishes the truth of its ultimate conclusion and gives its audience good reason to believe that the conclusion is true. Since the premise is false, it can't establish that the ultimate conclusion is true. The good inference isn't enough to save the argument.

Evaluating inferences can be a little tricky, so let's think about it a some more.

<u>Inferences and Premises</u>

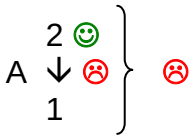
It bears repeating that whenever we evaluate inferences we need to remember that *premises and inferences are very different things*.

There's a horrible and natural temptation to assume that premises and inferences stand or fall together, so that an inference is bad if the premise that it starts from is bad and that an inference is good if the premise that it starts from is good. This is wrong.

As we've seen in Example 4, an inference can be bad even if the premise is good.

> "Are you wondering which brand of soap is the superior product? This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap, so Cool and Fresh soap must be the best."

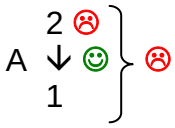
1. Cool and Fresh soap must be the best.
2. This magazine ad shows someone giving a very good presentation at work after using Cool and Fresh soap.



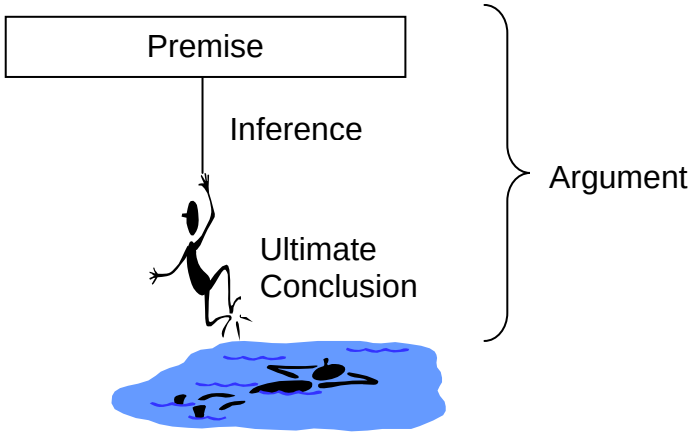
And as we've seen in Example 5, an inference can be good even if the premise is bad.

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"

1. Commercials are a boon for students everywhere.
2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.



The distinction between premises and inferences is easy to understand if we think in terms of beams and ropes because beams and ropes are *obviously* different things.



Nobody would suppose that a rope needs to be strong simply because it's hanging from a good beam. A weak rope can hang from a strong beam and so a weak inference can run from a good premise. (As happened in Example 4.)

Similarly, nobody would suppose that a rope needs to be bad simply because it's hanging from a bad beam. A strong rope can hang from a weak beam and so a good inference can run from a bad premise. (As happened in Example 5.)

In general, *the strength of the inference between two ideas is independent of the actual truth of either idea*, and if we remember our ropes and beams, we'll be a lot less likely to confuse evaluating premises with evaluating inferences.

<u>Valid, Good, and Bad Inferences</u>

- *Valid Inferences*

To better understand how the strength of the inference between two ideas is independent of the actual truth of either idea, let's consider the inference connecting the idea "You are a green Martian," to the idea "You are a Martian."

You are a green Martian
A ↓
You are a Martian

I very much doubt that these ideas are true. But we're not considering the truth of the ideas, right? We're considering the *connection* or *inference* between these two ideas, and *that* seems to be excellent because if the first idea *were* true then the second idea would need to be true as well. If you *were* a green Martian then you'd *have* to be a Martian, wouldn't you? We call perfect inferences like this "*valid inferences*." When we say that an inference is valid, we mean that if the ideas at the top of the inference arrow were true then the idea at the bottom of the inference arrow would *have* to be true as well.

And, by the way, whenever we use the word "valid" we'll be referring to inferences. Outside logic and critical thinking, we can talk about a point or idea being valid. But not here. Here only *inferences* are valid. Points and ideas aren't valid; they're good or bad, true or false, but they aren't valid or invalid.

Because valid inferences are as good as an inference can get, I'll mark them with a smiley face with an exclamation point in back.

You are a green Martian
A ↓ ☺!
You are a Martian

- *Good and Bad Inferences*

Of course, not every inference is valid. In fact, very few inferences are valid. "Valid," after all, means "perfect" and almost *everything* falls short of perfection. Almost all inferences are imperfect, or *invalid*.

When we say that the inference between one idea (call it R for "reason") and another idea (call it C for "conclusion) is *good* (although not perfect), we simply mean that *if* R *were* true then C would *most likely* be true as well, although it wouldn't *have* to be true. To say that the inference between R and C is *bad*, on the other hand, is to say that *even if* R were true, C could *very easily* be false; it's to say that the truth of R has virtually no bearing upon the truth of C.

(Note that although "valid" and "invalid" are reserved for inferences, and "true" and "false" are reserved for ideas, both ideas *and* inferences can be described as "good" and "bad." Most of the time I'll be talking in terms of "good" and "bad" for exactly this reason.)

Think about the inference connecting the idea "You are a green Martian," to the idea "You believe in extra-terrestrial life."

You are a green Martian
A ↓
You believe in extra-terrestrial life.

Now, of course, it doesn't matter whether or not either of these ideas is actually true. The question is "If the first idea *were* true, would the second idea be true as well?" or "If you *were* a green Martian, *would* you believe in extra-terrestrial life?"

I think that the answer to this question is "Very likely, but not for certain." After all, maybe you're suffering from amnesia. Maybe you don't *know* that you're a Martian. Maybe you think that you're just a normal earth-person with a rare pigmentation disorder. Nonetheless, barring such a situation, I think that you probably would believe in extra-terrestrial life if you were a green Martian, and so I'd say that this inferences is good even though it isn't perfect. Good but imperfect inferences will get regular, nonexclamatory, smiles.

You are a green Martian
A ↓ ☺
You believe in extra-terrestrial life

But now consider the inference connecting the idea "You are a green Martian" to the idea "You enjoy pepperoni pizza."

You are a green Martian
A ↓
You enjoy pepperoni pizza.

This inference is very bad because even if you *were* a green Martian you could still *very easily* not enjoy pepperoni pizza. Sure, you *might* like it, but the chances are equally good that you don't. The fact that you're a green Martian simply wouldn't help me decide what to order for dinner. I might very easily say to myself, "Just because this being is a green Martian, it doesn't mean that this being enjoys pepperoni pizza." Bad inferences will, of course, get frowns.

You are a green Martian
A ↓ ☹
You enjoy pepperoni pizza.

In practice, then, inferences come in *degrees* of goodness, lying on a continuum from very bad to perfect, or valid. (Validity *itself*, though, doesn't come in degrees. An inference can't be "sort of" valid just like something can't be "sort of" perfect. Either something is perfect, or it isn't. Either an inference is valid, or it's not.)

Of course, once we start talking about degrees of goodness, it can be difficult to decide how good something needs to be. How good an inference needs to be in order to be "good enough" is largely a matter of context and personal preference. Under some circumstances (say when deciding if a plane is safe to fly) we want our inferences to be *very* good because the stakes are high. Under other circumstances (say when deciding whether or not to attend a certain movie) we can make do with weaker inferences

because it doesn't really matter much if we make a mistake. Similarly, some people are just more risk-averse than others, and they'll hold inferences to a fairly high standard most of the time. Other people are more comfortable with error, and they'll reason in a looser way.

The Bob Method

The *really important thing to remember* is that the inference between two ideas can be good *even if the ideas themselves are false*. This means that it's *very important* to prevent our opinion about the truth of the ideas from biasing our assessment of the connection *between* the ideas. Of course, this can be hard to do, and so to help us evaluate the inferences, we'll invent a character named "Bob."

Bob is a perfectly gullible but perfectly rational person. In virtue of being perfectly gullible, Bob believes anything we tell him, but in virtue of being perfectly rational, he thinks very clearly. When we want to evaluate an inference between R and C we'll tell Bob to believe R and then ask ourselves "How likely is Bob to believe C?"

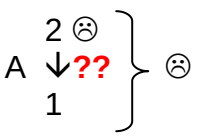
- If Bob is compelled to believe C, if he couldn't avoid it in any way, then the inference between R and C is *perfect* or *valid*.
- If Bob is inclined but not compelled to believe C, then the inference between R and C is *invalid but good*.
- If Bob is not even inclined to believe C, then the inference between R and C is *invalid and bad.*

We'll call this "The Bob Method" for evaluating inferences.

(Please remember that the Bob Method is used to evaluate inferences and *not* to evaluate premises! Since Bob believes everything we tell him and since we'll be telling him to believe all of the premises, Bob will like *all* premises, no matter how outlandish! We just can't depend upon Bob to help us decide whether or not a premise is good; he's far too gullible for that. According to Bob, *all* premises are good.)

Let's apply the Bob Method to the inference in example 5.

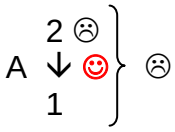
> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"
>
> 1. Commercials are a boon for students everywhere.
> 2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.



First, we tell Bob that studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Bob, being gullible, will believe this. Then we determine how likely Bob is to believe that commercials are a boon for students everywhere.

It seems to me that Bob is strongly inclined to believe it. Of course, Bob *could* doubt the importance of IQ for academic success, which means that Bob isn't *compelled* to think that commercials are a boon for students everywhere, but it's reasonable to suppose that Bob would *probably* would agree with the conclusion. This means that the inference is invalid but good.

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"
>
> 1. Commercials are a boon for students everywhere.
> 2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.



The Bob Method is a great way to evaluate inferences because it can be applied to any argument. It also demonstrates why it's nice to be able to evaluate an inference even when we disagree with the premise. Evaluating inferences helps to see how rationally the author of the argument is thinking, and it's very useful to realize when the author is thinking rationally, *especially if* the author has beliefs, expressed as premises, that we don't share.

<u>More about Bob</u>

There are two points worth making about the Bob Method.

The first point is that Bob understands the words in the argument. It's *very* difficult to explain exactly what's *involved* in understanding the meaning of a word, but understanding the word "student" probably involves, among other things, understanding that students are engaged in an educational process of some sort. (If you think that all students pay tuition then you're wrong about students – some students are on full scholarships, or are studying on their own - but you probably understand what the word "student" means. If you think that students are a type of cookie, on the other hand, you're not just wrong about students; you don't really grasp the word "student." Where's the line between being wrong about student-the-thing and being wrong about "student"-the-word? Good question. That's exactly why meaning is so complicated.)

Because Bob understands the meaning of the words in the argument and because knowing the meaning of "student" involves knowing that students are engaged in an educational process, if Bob believes that Mary is a student, then Bob will believe that Mary is involved in an educational process. This shows that the inference from "Mary is a student," to "Mary is involved in an educational process," is strong.

The second point about the Bob Method is that we can trust that if the Bob Method says that an inference is good then it *is* good. We can say that the Bob test will never give us a "false positive." Unfortunately, in some *rare* cases the Bob Method may give us a "false negative." In other words, the Bob test can tell us that an inference is *bad* when it's actually good. Consider the inference between "Mary has a squirrel in her attic," and "Mary has a member of the zoological subfamily *sciurinae* in her attic," for instance. As a matter of fact, squirrels *are* members of the zoological subfamily *sciurinae*, so the truth of "Mary has a squirrel in her attic," guarantees the truth of the idea "Mary has a member of the zoological subfamily *sciurinae* in her attic." The inference between these ideas is good. But now, what about Bob? If Bob believes that Mary has a squirrel in her attic, how likely is Bob to believe that Mary has a member of the zoological subfamily *sciurinae* in her attic? See the problem? Although knowing what the word "squirrel" means probably includes knowing that squirrels are animals, it probably *doesn't* involve knowing that squirrels are members of the zoological subfamily *sciurinae*. (I certainly think that I knew what "squirrel" meant before I looked up the subfamily!) Unless we suppose that Bob knows a lot of zoology, then, it looks like he could believe the first idea without believing the second. This means that the Bob Method would tell us that the inference is *bad* even though, as we've just seen, the inference is *good*. How worried should we be about this?

We don't need to be very worried. We just need to remember that the Bob Method is only a *test* for strong inferences. We'll be learning other tests later. No test needs to be perfect; it only needs to do what it's designed to do. The Bob Method is designed to prevent our disbelief in the premises from contaminating our assessment of the inference, and it does that very well. It doesn't *matter* if we don't swallow the premises; *Bob* swallows them. And if Bob says that an inference is good, then it *is* good, regardless of whether or not we happen to believe the premises. The moral of the story, then, is that we can continue to use the Bob Method in good conscience.

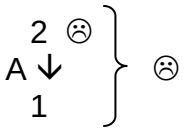
There's one more point we should make about inferences before we move on.

<u>Inferences in Circular Arguments</u>

We saw that Example 2 was a bad argument because its premise could be believed only by people who already believed the ultimate conclusion, and, as such, the premise couldn't be believed by members of the argument's audience. This made the argument circular.

But what about the *inference* in Example 2? Let's apply the Bob Method.

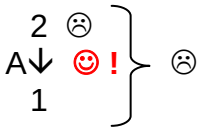
> "Advertisements are designed to get people to buy the product because they are designed to sell the product."
>
> 1. Advertisements are designed to get people to buy the product.
> 2. Advertisements designed to sell the product.



Using the Bob Method to evaluate inference A, we suppose Bob believes that advertisements designed to sell the product and we ask ourselves "How likely is Bob to believe that advertisements are designed to get people to buy the product?"

What do you think? It seems to me that Bob would be *compelled* to believe that advertisements are designed to get people to buy the product. After all, that's pretty much the same thing as believing that advertisements designed to sell the product, which Bob already does believe, and so inference A is valid. Since valid is as good as an argument can get, we'll put a smiley face with an exclamation point next to the inference:

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."
>
> 1. Advertisements are designed to get people to buy the product.
> 2. Advertisements designed to sell the product.



Actually, *all* circular arguments will have a valid inference. Can you see why? It's because whenever an argument is circular, it has a premise which can be believed only by someone who already believes the ultimate conclusion. Thus, when we suppose that Bob believes this premise we need to suppose that Bob already believes the ultimate conclusion. This means that when we ask ourselves "How likely is it that Bob will believe the ultimate conclusion?" the answer must be "One hundred percent likely, since he already *does*!" making the inference valid.

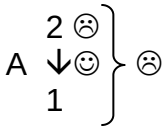
This is cold comfort for the argument as a whole, of course. Since an argument is good only if it establishes the truth of its ultimate conclusion and gives its audience good reason to believe that the conclusion is true, and since an argument can't convince *anyone* if it has premises that are acceptable only to people who already believe the ultimate conclusion, circular arguments are bad arguments, the valid inference notwithstanding.

Now let's summarize what we've learned in this example.

Summary

Here's how we analyzed and evaluated this argument.

> "Commercials are a boon for students everywhere, since studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points. Imagine that!"
>
> 1. Commercials are a boon for students everywhere.
> 2. Studies have shown that each commercial watched safely and permanently increases the viewer's I.Q. by an average of 5 points.



This argument has taught us

Argument analysis skills, specifically
- that commands don't convey ideas and so are usually omitted from our list of important ideas.

Argument evaluation skills, specifically
- how to use the Bob Method to evaluate inferences.

Now let's take a look at the next passage.

Example 6

Step 1 - Recognizing an Argument

Consider the following passage.

> "Advertisements appear in newspapers, in magazines, on billboards, on radio, and on television. A good advertisement should be memorable. Don't you agree?"

Stop and Think

Does this passage contain an argument? Is it trying to convince us that something is true by citing other ideas as evidence?

In fact, there's no argument here. If this passage contained an argument, it would be trying to prove that something is true, but although this passage certainly makes a

number of claims, it isn't trying to convince us of any of them. Instead, it's simply relaying facts to us, and trusting that we'll take them for granted. Since this passage is simply making claims, without attempting to prove any of them, it doesn't contain an argument.

(It's also useful to note, that this point, that the passage doesn't contain any inference indicator expressions, and this is good reason to at least *suspect* that the passage doesn't contain an argument. We can't rely on this too heavily, though, because later on we'll be seeing arguments without inference indicator expressions.)

Let's see if the next passage contains an argument.

Example 7

Step 1 - Recognizing an Argument

Take a look at the following passage:

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."

Stop and Think

Does this passage contain an argument? Is it trying to convince us that something is true by citing other ideas as evidence?

I'd say that this passage does contain an argument because it is trying to prove that one idea is true by citing other ideas as evidence. There's an inference indicator expression in this passage that might help us to see this, too.

Stop and Think

Look at the passage once more. What's the inference indicator expression in this passage?

The inference indicator expression here is "it follows that."

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."

But is "it follows that" a conclusion or a reason indicator expression? Does it, in other words, introduce a conclusion (making it a conclusion indicator expression like

"therefore") or does it introduce a reason to believe something else (making it a reason indicator expression like "because").

Stop and Think

Is "it follows that" a conclusion indicator expression or a reason indicator expression?

As before, we'll decide if "it follows that" is a conclusion indicator expression or reason indicator expression by first replacing the "it follows that" with "therefore," then replacing the "it follows that" with "because," and seeing which passage sounds more like the original.

Here's the original:

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."

Here's what we get when we replace "it follows that" with "therefore":

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. Therefore they are unethical."

And here's what we get when we replace "it follows that" with "because":

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed because they are unethical."

It seems to me that the first passage is more like the original, which means that "it follows" is more like "therefore." It's a reason indicator expression.

Step 2- Analyzing the Argument

Identifying the Ultimate Conclusion

Now that we know that this passage contains an argument, we can analyze it. As usual, we'll try to identify the ultimate conclusion first.

Stop and Think

Look at the passage again. What's the ultimate conclusion of this argument?

Remember that the "it follows that" is a conclusion indicator expression.

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."

This tells us that "they [false advertisements] are unethical" is the ultimate conclusion of this argument.

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that [they are unethical.]" ← **Ultimate conclusion**

With our ultimate conclusion identified, we can start our list of important ideas as follows:

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."
>
> U 1. They [false advertisements] are unethical.

Identifying the Other Important Ideas

Now we're ready to make a list of the other important ideas in the argument.

Stop and Think

What other ideas in this passage are important?

In particular, what should we do with the sentence "Have you ever wondered about the morality of false advertisements?"? Should that go in our list?

Should "Wonder no more!" go in our list?

And what about "False advertisements are a form of deception motivated by greed"? Should that go in our list?

Since the first sentence, "Have you ever wondered about the morality of false advertisements?" is a question, and since questions don't usually convey ideas, let's ignore this sentence.

> "~~Have you ever wondered about the morality of false advertisements?~~ Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."
>
> U 1. They [false advertisements] are unethical.

The second sentence, “Wonder no more!” is a command, and since commands don’t usually convey ideas, let’s ignore this sentence, too.

> “~~Have you ever wondered about the morality of false advertisements? Wonder no more!~~ False advertisements are a form of deception motivated by greed. It follows that they are unethical.”
>
> U 1. They [false advertisements] are unethical.

Unlike the first two sentences, however, the third sentence, “False advertisements are a form of a deception motivated by greed,” *should* go in our list. It’s “connected” to the ultimate conclusion with “It follows that,” which tells us that an inference will run between these ideas, so it’s definitely a part of the argument.

> “~~Have you ever wondered about the morality of false advertisements? Wonder no more!~~ False advertisements are a form of deception motivated by greed. It follows that they are unethical.”
>
> U 1. They [false advertisements] are unethical.
> 2. False advertisements are a form of deception motivated by greed.

Identifying the Roles of the Important Ideas

Now that we have our list of ideas, we can determine what role each plays. And once again, idea 2 has to be a premise, rather than a subconclusion, because the argument just expects us to take it for granted rather than giving us any reason to believe it. We’ll show that 2 is a premise by putting a “P” next to it.

> “~~Have you ever wondered about the morality of false advertisements? Wonder no more!~~ False advertisements are a form of deception motivated by greed. It follows that they are unethical.”
>
> U 1. They [false advertisements] are unethical.
> P 2. False advertisements are a form of deception motivated by greed.

Identifying the Inferences

Because “it follows that” is a conclusion indicator expression, it tells us that idea 1 is a conclusion from idea 2. In other words, it tells us that tells us that idea 2 is being given as a reason to believe idea 1, so we’ll draw an arrow from idea 2 to idea 1, like this:

> “~~Have you ever wondered about the morality of false advertisements? Wonder no more!~~ False advertisements are a form of deception motivated by greed. It follows that they are unethical.”

U 1. They [false advertisements] are unethical.
P 2. False advertisements are a form of deception motivated by greed.

Double-checking confirms that we've gotten the inference right.

Reading up the arrow (*away* from the arrow head) with a reason indicator expression we get "False advertisements are unethical *because* false advertisements are a form of deception motivated by greed."

Reading down the arrow (*toward* the arrow head) with a conclusion indicator expression, we get "False advertisements are a form of deception motivated by greed. *Therefore* false advertisements are unethical."

Both of these passages make sense and correspond to what the original passage is saying, so we can feel good about our arrow.

(Remember, reading up the arrow with "because" does a better job of catching mistakes than reading down the arrow with "therefore," and it's always a good idea to check our inferences against the original passage too.)

Diagramming the Argument

This argument, therefore, is diagramed like so:

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."
>
> 1. They [false advertisements] are unethical.
> 2. False advertisements are a form of deception motivated by greed.
>
> 2
> A ↓
> 1

Step 3- Evaluating the Argument

Now that we've diagrammed the argument, we can evaluate it.

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."
>
> 1. They [false advertisements] are unethical.
> 2. False advertisements are a form of deception motivated by greed.

2
A ↓
1

Let's start by looking at the premise.

Stop and Think

Do you think this premise is good or bad?

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."
>
> 1. They [false advertisements] are unethical.
> 2. False advertisements are a form of deception motivated by greed.

2 **??**
A ↓
1

Let's evaluate the premise in this argument by working through about the three questions we should ask of any premise:

1) "Is this premise true?"

I suspect that this premise is true because it seems to me that false advertisements aren't accidental (not usually anyway), which makes them a kind of deception, and that they're designed to make money.

2) "Would most members of the argument's audience, including people who don't already believe the ultimate conclusion, believe this premise?"

I think that the argument's audience, including people who don't already think that false advertisements are unethical, could believe this premise. (There is room to disagree with me here. Maybe being unethical is part of what it means to be an act of deception, in which case if someone doesn't already think that false advertisements are unethical then she can't believe that they're a form of deception. I, however, think that someone can think that something is a form of deception without thinking that it's unethical, so I don't think that this premise assumes the conclusion.)

3) "Does the argument's audience have good reason to believe this premise?"

It seems to me that most people do have good reason to believe that false advertisements are a form of deception motivated by greed, common-knowledge about advertising being what it is.

In short, this premise looks pretty good to me, so I'll give it a smiley face.

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."
>
> 1. They [false advertisements] are unethical.
> 2. False advertisements are a form of deception motivated by greed.
>
> 2 ☺
> A ↓
> 1

This isn't enough information for us to evaluate the entire argument, though, because if the inference is bad, the ultimate conclusion will "fall" and the argument will be bad.

So we need to take a look at the inference.

Stop and Think

Do you think this inference is good or bad?

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."
>
> 1. They [false advertisements] are unethical.
> 2. False advertisements are a form of deception motivated by greed.
>
> 2 ☺
> A ↓ **??**
> 1

I'd say that the inference in this argument is pretty good. Using the Bob method, I think that Bob (a perfectly gullible, perfectly rational person) would be inclined to believe the ultimate conclusion if he were told the premise so I think that the inference is strong.

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."
>
> 1. They [false advertisements] are unethical.
> 2. False advertisements are a form of deception motivated by greed.

2 ☺
A ↓ ☺
1

Now, what about the argument itself?

Stop and Think

Is the argument as a whole good or bad?

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."
>
> 1. They [false advertisements] are unethical.
> 2. False advertisements are a form of deception motivated by greed.

2 ☺
A ↓ ☺ } ??
1

A Good Argument

We've seen that the premise is good because it's true and rationally acceptable to people who don't already believe the ultimate conclusion.

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."
>
> 1. They [false advertisements] are unethical.
> 2. False advertisements are a form of deception motivated by greed.

2 ☺
A ↓
1

We've seen that the inference is strong because a fully rational person who believes the premise (like Bob) would be likely to believe the conclusion as well.

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are a form of deception motivated by greed. It follows that they are unethical."
>
> 1. They [false advertisements] are unethical.
> 2. False advertisements are a form of deception motivated by greed.

2 ☺
A ↓ ☺
1

Putting these observations together, we can see that this argument does establish the probable truth of its conclusion and does give its audience good reason to believe that the ultimate conclusion is true.

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are form of deception motivated by greed. It follows that they are unethical."
>
> 1. They [false advertisements] are unethical.
> 2. False advertisements are form of deception motivated by greed.

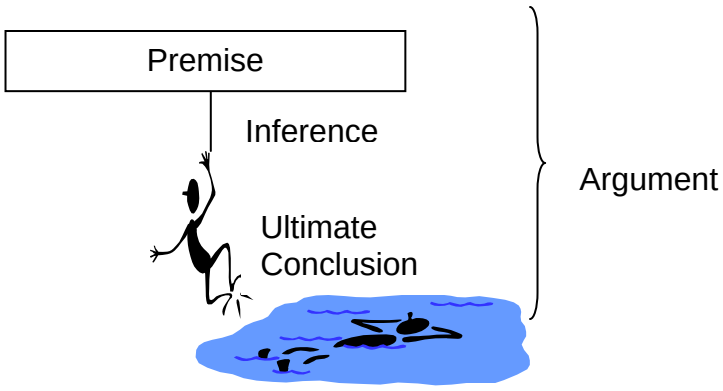
2 ☺
A ↓ ☺
1 **Probably True**

Because this is exactly what we want from an argument, this argument is good and deserves a smiley face of its own.

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are form of deception motivated by greed. It follows that they are unethical."
>
> 1. They [false advertisements] are unethical.
> 2. False advertisements are form of deception motivated by greed.

2 ☺
A ↓ ☺ } ☺
1

The fact that good premises and good inferences give us a good argument makes sense when we remember the hanging man model.



The ultimate conclusion is a fellow hanging on to a rope suspended from a beam; the beam is the premise, and the rope is the inference. If the beam and the rope are both strong, the fellow is in no danger of dropping into the lake. Analogously, if the premise and the inference are both good, the ultimate conclusion is well supported.

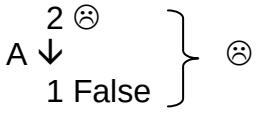
(By the way, it's a really good idea to get used to thinking in terms of the Hanging Man model instead of memorizing a rule like "a bad premise or a bad inference makes the argument bad." It's true that for the structurally simple premise / ultimate conclusion arguments we've seen so far, and for the kinds of arguments we'll be seeing in the next two chapters, one bad premise or one bad inference will doom the argument. Later on, however, we'll be seeing some arguments that aren't like this, arguments that can be good even if they have a bad premise or inference. By thinking about those arguments in the same way we thought about the others, using the Hanging Man model, we'll be able to figure out what *they* need in order to be good. Basically, then, thinking about arguments like people suspended from beams by ropes is a more general way of thinking about arguments than simply assuming that one bad premise or one bad inference spoils the lot. That's why we'll be thinking in terms of people, ropes and beams.)

<u>The Ultimate Conclusion</u>

Let's take this opportunity to continue our examination of the relationship between an argument and its ultimate conclusion. As we learned from Example 1, a bad argument can have a false conclusion.

> "Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product. Therefore, there's no need to research items before making a major purchase."

1. There's no need to research items before making a major purchase.
2. Every advertisement is designed to give the consumer completely accurate and comprehensive information about the product.

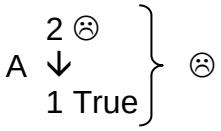


We can represent this fact in the following table:

	True Ultimate Conclusion	False Ultimate Conclusion
Good Argument		
Bad Argument		YES

Perhaps more surprisingly, Example 2 showed us that a bad argument can have a true conclusion.

> "Advertisements are designed to get people to buy the product because they are designed to sell the product."
>
> 1. Advertisements are designed to get people to buy the product.
> 2. They (i.e. advertisements) are designed to sell the product.



We may, therefore, record that fact in our table.

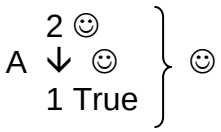
	True Ultimate Conclusion	False Ultimate Conclusion
Good Argument		
Bad Argument	**YES**	**YES**

This table demonstrates that *there are no restrictions* on the conclusions of bad arguments. A bad argument doesn't tell us that its ultimate conclusion is false (because bad arguments can have true conclusions); a bad argument doesn't tell us that its ultimate conclusion is true (because bad arguments can have false conclusions).

In other words, *a bad argument gives us no information whatsoever about its ultimate conclusion*. That's why bad arguments are bad arguments. It wouldn't be so terrible if we knew that bad arguments always had false conclusions because then bad arguments would *tell* us something. A bad argument for the conclusion "There is life on other planets," for example, would tell us that "There is life on other planets" is false, and that, in turn, would tell us that there *isn't* life on other planets. But it doesn't work like that. Because bad arguments can have true or false conclusions, the fact that this argument is bad doesn't tell us *anything* about the existence of life on other planets – nothing, nichts, nada – and *that's* the problem.

The argument in Example 7, which we've just finished evaluating, proves that a good argument can have a true conclusion.

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are form of deception motivated by greed. It follows that they are unethical."
>
> 1. They [false advertisements] are unethical.
> 2. False advertisements are form of deception motivated by greed.



So our table is almost complete!

	True Ultimate Conclusion	False Ultimate Conclusion
Good Argument	**YES**	
Bad Argument	YES	**YES**

There's only one possible combination left: a good argument with false conclusion. Are there such arguments?

	True Ultimate Conclusion	False Ultimate Conclusion
Good Argument	**YES**	**???**
Bad Argument	**YES**	**YES**

Stop and Think

Can a good argument have a false conclusion?

Arguments and Ultimate Conclusions

Although there are bad arguments with false conclusions,

	True Ultimate Conclusion	False Ultimate Conclusion
Good Argument		
Bad Argument		YES

bad arguments with true conclusions

	True Ultimate Conclusion	False Ultimate Conclusion
Good Argument		
Bad Argument	YES	YES

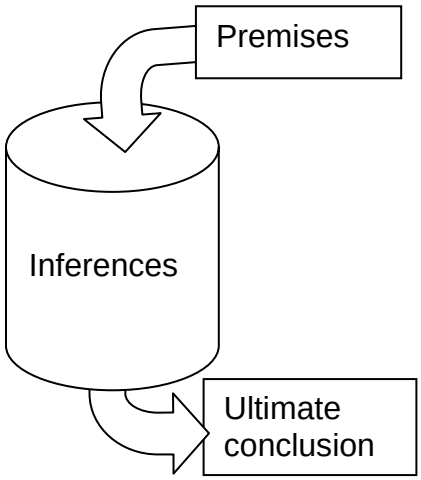
and good arguments with true conclusions

	True Ultimate Conclusion	False Ultimate Conclusion
Good Argument	YES	
Bad Argument	YES	YES

there are no good arguments with false conclusions!

	True Ultimate Conclusion	False Ultimate Conclusion
Good Argument	YES	**NO!**
Bad Argument	YES	YES

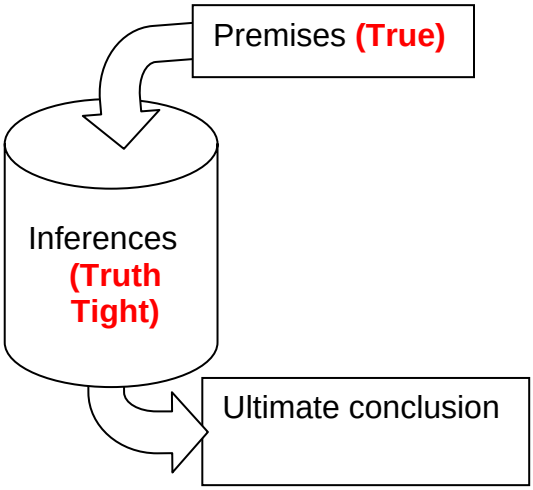
To see why this is the case, let's think about an argument like a machine that takes premises as the input, has inferences as a pipe between the premises and the ultimate conclusion, and produces the ultimate conclusion as output. Like this:



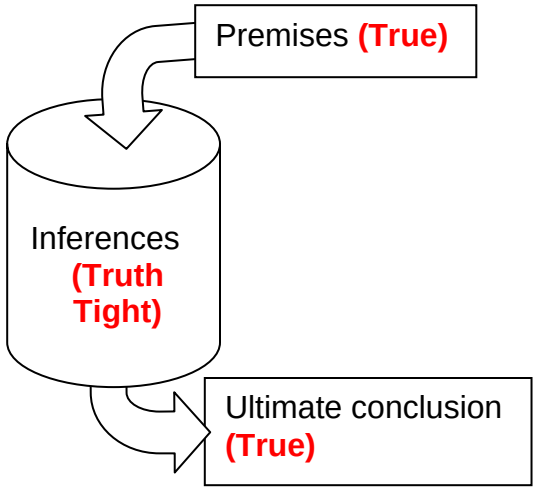
If an argument is good, we know two things:
1) The premises are true, and
2) The inferences are good.

(We know this because if we decided that the premises or the inferences were bad then we wouldn't think that the argument is good.)

This means that, if the argument is good:
1) Truth goes into the device, and
2) There's no place where truth can "leak out" from the inferences. We might say that the inferences are "truth tight."



Now – if truth goes into a pipe from which no truth can escape, what comes out of the pipe? Truth, of course!



So… Thinking that an argument is good involves thinking that the premises are true and the inferences are strong. And if we think that the premises are true and the inferences are strong then we have to decide that the conclusion is true as well. Thus, thinking that an argument is good means thinking that the conclusion is true.

Understanding the relationship between an argument and its ultimate conclusion is important because it helps to explain the following four very useful points.

1. Deciding that an argument is bad tells us *nothing* about the argument's ultimate conclusion.

As noted before, since bad arguments can have true and false conclusions, the fact that an argument is bad can't help us to decide whether its conclusion is true or false. We

may have *other* reasons to believe or disbelieve the ultimate conclusion, of course, but the argument itself gives us no evidence one way or the other.

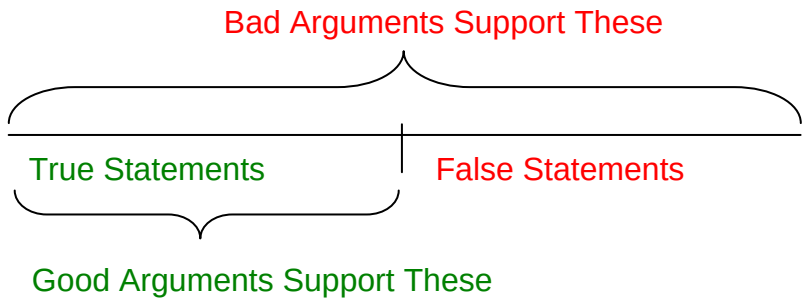
2. Deciding that an argument is good *does* tell us something about the argument's ultimate conclusion.

Since good arguments can't have false conclusions, the fact that an argument is good lets us know that its conclusion is true. If argument is *pretty good* but not perfect (perhaps because the premises are probably true but can't be proven beyond a reasonable doubt, or perhaps because the inference is fairly strong but not valid) we know that the conclusion is probably, but not definitely, true. If we're faced with arguments for competing positions, we should believe the position supported by the strongest arguments because, that way, we'll have the best chance of believing the truth. (This is exactly why it's important to evaluate arguments. If we find that argument is bad, we don't know whether we should believe or disbelieve the conclusion, *but* if we find that an argument is good, or better than the alternatives, then we'll know that we should believe the conclusion. In this way, evaluating arguments can help us to decide what to think.)

3. Evaluating an argument isn't the same thing as agreeing or disagreeing with the conclusion.

Because bad arguments can have true and false conclusions, we can think that an argument is bad when we *disagree* with the conclusion and we can think that an argument is bad when we *agree* with the conclusion. (If you find this hard grasp, remember that it's one thing to know that the ultimate conclusion is true; it's quite *another* thing to think that the argument at hand has *proven* it to be true.) Practically speaking, this means that when we hear someone criticizing an argument for a conclusion, we can't decide that she disagrees with that conclusion. Maybe she agrees with the conclusion and simply thinks that the argument at hand doesn't do a good job proving it.

4. Bad arguments outnumber good arguments. Since *every* conclusion, both true ones and false ones, can have bad arguments advanced in their favor, and since only *true* conclusions can have good arguments advanced in their favor, there just *are* more bad arguments than good ones. We can represent this fact by the following diagram:



This explains why you might find the world a little frustrating after you've gotten pretty good at critical thinking (say, by the end of Chapter 3). Once you can evaluate and construct arguments, there's a natural desire to rid the world of as many bad arguments as possible, replacing them with good ones. Unfortunately and maddeningly, since there are and always will be more bad arguments than good arguments, replacing all bad arguments with good arguments is impossible. That's why it's important to choose your battles wisely, spending your energies combating bad arguments that have the most potential to do harm.

In the interests of full disclosure, you should know that the fact that bad arguments outnumber good arguments is only a *partial* explanation for why you'll see many more bad arguments than good ones in this book. Most of the arguments which I'll offer are designed to help you spot particular kinds of flaws, and so they'll need to *exhibit* those flaws. Bad arguments are simply more *instructive* than good ones. Please don't let this mislead you into thinking that virtually all arguments are bad, or into believing that the whole purpose of analyzing and evaluating arguments is to learn how to ruthlessly tear them to pieces. Whenever you analyze and evaluate an argument, you should be prepared to find that the argument is actually good and (as a result) be prepared to accept the ultimate conclusion.

What we can and can't expect from our evaluations

Now that we've learned quite a bit about evaluating arguments, let's think a bit about what we can, and can't, expect from our evaluations.

First, it's important to realize that *we can't expect unanimous agreement about the evaluation of an argument*. Sometimes a premise or an inference is objectively good or bad, in which case there is exactly one correct assessment of it, but in *other* cases people can legitimately disagree over whether or not a premise or an inference is acceptable and this will result in legitimate disagreement about the evaluation of the argument. Sometimes, in fact, you might disagree with my evaluation of an argument and you shouldn't automatically assume that you're wrong when you do. (Although you probably should read over what I've written to make sure that you understand why I evaluated the argument as I did.)

A certain lack of consensus is to be expected, and shouldn't be taken to undermine the importance of argument evaluation. Whether or not other people agree with our assessment of an argument, evaluating the argument helps us to get clearer about what *we* think of it and why. Furthermore, evaluating arguments often helps people bring their beliefs closer to each other, and even where the dispute over a premise or an inference is deep and intractable, evaluating an argument at least helps everyone to see exactly *where* they disagree and *why*, and this, in itself, is an important contribution.

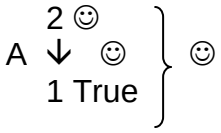
Second, since the a premise may be more or less believable to the argument's audience, and since an inference may be more or less good, we can't expect arguments to be *absolutely* good or *absolutely* bad. Instead, arguments themselves usually lie on a

continuum between good and bad; arguments are more often better or worse than each other than they are absolutely perfect or absolutely horrible. Just like a good argument proves that its conclusion is true, a "pretty good" argument proves that its conclusion is *probably* true. This is especially important to bear in mind when we examine arguments for and against particularly deep and complex ideas, like the existence of God. In such a case, we may *never* find a perfectly good argument for *any* position. We can only compare the arguments on all sides of the issue and adhere to the side that's supported by the strongest (although imperfect) argument.

Summary

Here's how we analyzed and evaluated this example.

> "Have you ever wondered about the morality of false advertisements? Wonder no more! False advertisements are form of deception motivated by greed. It follows that they are unethical."
>
> 1. They [false advertisements] are unethical.
> 2. False advertisements are form of deception motivated by greed.



This argument has taught us

Argument evaluation skills, specifically,

- If all of the premises and inferences in an argument are good then the argument is good.
- Although bad arguments can have true conclusions and false conclusions, if an argument is good then the ultimate conclusion must be true.

That's the last of the examples for this chapter!

Now let's take a look at how we can apply what we've learned to real life.

Real Life

Okay, so whenever you read an argument, you're supposed to take out a sheet of paper, write down all of the important ideas, determine the argumentative role of each these ideas, draw in the inferences, diagram the argument and then evaluate the argument on the basis of the diagram. Right?

Well, no.

Unless the argument is particularly long, difficult, or important, you'll probably end up doing most of this in your head instead of on paper – once you internalize the process, at least.

The most important thing is the *skill set* that you acquire when you learn how to diagram arguments, and this skill set comes in remarkably handy whether or not you actually write down a diagram.

For instance, you might not always make a list of the important ideas, but you *will* always try to identify the ultimate conclusion of the argument because this will help you to see where the argument is going, and you will always distinguish between ideas that are important to the argument and ideas that can be disregarded.

You won't always write down "U" next to the ultimate conclusion, "P"s next to premises, and (as we'll soon see) "S"s next to subconclusions, but you *will* always try to determine which ideas are premises and which ideas are subconclusions because this will enable you to evaluate those claims properly. (If something's a premise, you can just disagree with it. If something's a conclusion of some sort, you'll need to examine the reasoning.)

You won't always draw in the inferences and diagram the argument, but you will always keep track of how the ideas in the argument are working together to establish the ultimate conclusion because this will enable you to understand and evaluate the argument.

In short, even when you don't actually diagram an argument on paper, you'll be using the skills that you develop in the course of learning how to diagram an argument on paper. You'll be diagramming in your head, to varying degrees.

To see how this works, let's use our diagramming skills to analyze and evaluate some arguments mentally.

Example 1

Consider the following argument:

> "What's so great about democracy? Just think about it. Most people are fundamentally stupid and so any form of self-government is bound to fail in the long run."

Stop and Think

Take a moment to analyze and evaluate this argument mentally by

- identifying the ultimate conclusion of the argument,
- determining what other ideas are important,
- determining how these ideas relate to each other in the argument (e.g. where the inferences are, and so on),
- assessing the premises and inferences.

The first thing I notice is that this is an argument for the conclusion "Self-government is bound to fail in the long run," (or, maybe, "Democracy is bad," which I take to mean pretty much the same thing here). The conclusion indicator expression "so" helps me to see this.

> "What's so great about democracy? Just think about it. Most people are fundamentally stupid and so [any form of self-government is bound to fail in the long run.]" ← **U**

The first sentence is a question and so doesn't really contribute to the argument.

> "~~What's so great about democracy~~? Just think about it. Most people are fundamentally stupid and so [any form of self-government is bound to fail in the long run.]" ← **U**

The second sentence is a command and doesn't really contribute anything either.

> "~~What's so great about democracy~~? ~~Just think about it~~. Most people are fundamentally stupid and so [any form of self-government is bound to fail in the long run.]" ← **U**

"Most people are fundamentally stupid," however, is important, and it's a premise leading to the conclusion "self-government is bound to fail in the long run."

> "~~What's so great about democracy~~? ~~Just think about it~~. **P** → [Most people are fundamentally stupid] and so [any form of self-government is bound to fail in the long run.]" ← **U**

Now is it a good argument? I don't think so. It seems to me that this premise simply false, making the argument bad.

See how we can analyze and evaluate this argument in our head, just by *thinking in terms* of a diagram? This can be done pretty quickly, too, once we get used to it.

Example 2

Think about the following argument:

> "How can anyone criticize democracy? Democracy is the best kind of government because it's better than all the others."

Stop and Think

Take a moment to analyze and evaluate this argument mentally by
- identifying the ultimate conclusion of the argument,
- determining what other ideas are important,
- determining how these ideas relate to each other in the argument (e.g. where the inferences are, and so on),
- assessing the premises and inferences.

I think that the ultimate conclusion here is "Democracy is the best kind of government." I can tell this by looking at the reason-indicator expression "because."

> "How can anyone criticize democracy? **U** → [Democracy is the best kind of government] because it's better than all the others."

As before, the first sentence is a question and so doesn't really contribute to the argument.

> "~~How can anyone criticize democracy~~? **U** → [Democracy is the best kind of government] because it's better than all the others."

"Democracy is better than all other kind of governments" is important, though, and it's a premise leading to the conclusion "Democracy is the best kind of government."

> "~~How can anyone criticize democracy~~? **U** → [Democracy is the best kind of government] because [it's better than all the others.]" ← **P**

So that's how the argument goes.

Is it a good argument? Again, I don't think so. The problem this time is that the premise isn't acceptable to the argument's audience because only people who *already* believe that democracy is the best kind of government can believe that democracy is better than all others. In short, this premise assumes the truth of the ultimate conclusion and so the argument is circular.

Example 3

Take a look at this argument:

> "The framers of the Constitution of the United States were in favor of democracy. This goes to show that democracy is the best form of government."

Stop and Think

Take a moment to analyze and evaluate this argument in your head by
- identifying the ultimate conclusion of the argument,
- determining what other ideas are important,
- determining how these ideas relate to each other in the argument (e.g. where the inferences are, and so on),
- assessing the premises and inferences.

I think that the ultimate conclusion of this argument is the claim that democracy is the best form of government. The conclusion indicator expression "this goes to show that" helps me here.

> "The framers of the Constitution of the United States were in favor of democracy. This goes to show that [democracy is the best form of government.]" ← **U**

The only other idea in this argument is the "the framers of the Constitution of the United States were in favor of democracy, which is a premise leading directly to the ultimate conclusion.

> "**P** → [The framers of the Constitution of the United States were in favor of democracy.] This goes to show that [democracy is the best form of government.]" ← **U**

This time, I think that the premise is fine, but I find the inference weak. It's certainly true that the framers of the Constitution favored democracy, but does it necessarily follow from this that the democracy is the best? Mightn't the framers have been mistaken on this point?

Summary

We've seen that it's useful to learn how to diagram an argument *not* because we'll always diagram the arguments that we encounter (although sometimes we will) but because the skills that we develop when we learn to diagram arguments can be internalized and then applied directly to the arguments that we encounter.

Specifically, we can analyze and evaluate an argument mentally by

- identifying the ultimate conclusion of the argument,
- determining what other ideas are important,
- determining how these ideas relate to each other in the argument (e.g. where the inferences are, and so on), and
- assessing the premises and inferences.

Of course, working mentally like this requires some practice, and we'll continue to diagram arguments a *lot*, both because that's one of the best way to learn these skills and because it's much easier to compare your analysis of an argument to mine when there's a diagram to which we can refer.

Nonetheless, it's important to remember that the skills we're developing here are incredibly practical, and that their ultimate practicality lies in their eventual mastery and application on the fly.

It's time, now, to start thinking about how we can construct arguments of our own.

Constructing Arguments

So far, we've learned quite a bit about how to analyze and evaluate arguments. We've learned a lot about how to evaluate premises, how to evaluate inferences, and how to put this information together to get an evaluation of the entire argument. We've also learned how our evaluation of an argument should, and shouldn't, affect our attitude toward the ultimate conclusion.

The arguments we've considered have been structurally simple, but the concepts we've learned have been pretty sophisticated and they'll carry directly over to the more complex arguments that we'll see in the following chapters.

In real life, of course, we'll almost certainly want to do more than understand and respond to the arguments that other people give; sooner or later, we'll want to give an argument of our own. Before closing this chapter, let's start to see how we can go about constructing arguments.

The Introspection Myth

The process of constructing an argument of your own can pose special challenges. For one thing, there's often the same indeterminate scariness to it that characterizes writer's block: it's just you, and this big blank field that you're supposed to magically fill up with ideas that come from who-knows-where. For another thing, constructing your own argument is almost *always* "messier" than analyzing and evaluating someone else's argument: you might start, and change your mind, and go back and fix what you've done, and then change directions, and start again, in an apparent chaos of random activity. In my experience, these two factors often cooperate to form an unholy alliance: the messiness of creative intellectual activity can make you feel as though you're

terminally confused, which can make the process scarier, and the scariness of the process can prompt you to dash out in any direction, making it all even messier, until you eventually stop working on the project altogether. Nothing about this is fun. In fact, it's all rather horrible.

I think that these problems tend to be fueled by a central misconception, which I'll call "The Introspection Myth." The Introspection Myth says that your ideas are (or should be) sort of like books on a library shelf, all neatly ordered and waiting for you to take them down.

According to the Myth, when you want or need to construct an argument, defend a position, or engage in any other sort of creative intellectual activity, all you need to do is *introspect*, turn your inner eye onto your internal library, scan the shelves, choose the volume you want, and read off what you see.

Of course, the Introspection Myth is almost never stated so bluntly, or in exactly those terms, but most of us carry around the notion that our ideas should *already be in our minds somewhere* before we express them. After reading a very impressive article, have you ever thought "I could never write anything like that," because you don't "see" anything like that already constructed and waiting for you inside your own head? After listening to someone be very articulate, have you ever thought, "I'm not that smart" because you never talk *to yourself* like that? Have you ever done a pretty good job formulating an opinion and expressing yourself, and then thought "I must have gotten lucky. I could never do that again" because it just doesn't seem to you as though you *usually* have well constructed views like that? If so, you're probably in the grip of The Introspection Myth.

The good news is that the Introspection Myth is *just* a myth, and once you recognize it as such, and take another perspective toward thinking, much of the anxiety about formulating and defending your own opinions will go away. In actuality, *nobody* (at least nobody *I* know) walks around with fully-constructed and well-articulated positions in their heads, positions which they merely need to recite when the opportunity presents itself. Most of the time, people work out what they think in the process of thinking it.

When someone writes an article, for instance, he might start by saying things to his friends or colleagues. He'll probably change his mind a little, and expresses himself in another way. Maybe he'll decide that the issue he's considering is a little broad, so he'll narrow it down. Then he'll read and talk and write and change his mind some more. Eventually, he'll have a bunch of stuff written, which he'll reorganize. He'll go back and rewrite the beginning in light of what he's written at the end. He'll show it to his friends, who'll make suggestions and he'll change it some more. Finally, he might get the article published, and people will read it and think to themselves "I could never do anything like that because there's never been anything like that in my head." But, you see, it wasn't exactly in the author's head either! It wasn't as though the author's head contained a Big Book of Brilliant Ideas, parts of which he transcribed into the paper. To a very large extent, *the ideas and arguments in the paper were what evolved in the process of*

writing the paper and the author half-discovered and half-invented what he thought in the process of expressing it.

Realizing this can make writer's (or thinker's) block go away, or at least lessen it a lot. It *isn't* just you, and this big blank field that you're supposed to magically fill up with ideas that come from who-knows-where. It's you talking to yourself and other people, learning from their ideas, learning from your own ideas, changing your mind, and eventually coming up with something you like. Abandoning the Introspection Myth can also help you to remain unphased by the messiness of original thinking. And it *is* messy because there's almost always quite a bit of changing your mind, backing up, tossing everything out and starting over. But this is cause for alarm only if you assume that you should be accessing pre-existing ideas already in presented crystalline clarity somewhere in your mind. Once you recognize that your eventual position doesn't already exist anywhere but will be the result of a wonderfully messy and playful process, you'll be in a position to *enjoy* creative intellectual pursuits.

What I want to do here is introduce you to main outline of this process: 1) determining the ultimate conclusion, 2) constructing the chain of reasoning, and 3) communicating the argument. Other, subsidiary, steps of the process will be presented in the following chapters, but you shouldn't be misled by the relative tidiness of the steps that I'm going to give you. Tidy steps are *extraordinarily* helpful, but you should never confuse a description of a process with the activity itself. Reading a recipe is no substitute for baking, and the fact that the *recipe* is clean and neat doesn't mean that flour won't get all over the kitchen. Everything is messier than the directions make it sound. Just remember that that's okay and don't be afraid to get your hands dirty.

So, let's get started.

Step 1 – Determining the Ultimate Conclusion

Posing a Question

How do we start to give an argument of our own? The first step in constructing an argument is finding a question that interests us. It's important to begin with a question (or constellation of questions) because it can keep us motivated when the going gets tough. No other incentive is better than a deep and abiding curiosity. Beginning with a question can also help us to keep an open mind. If we remember that what we *really* want to do is find the answer to our question, we'll be less likely to confuse success with proving our own preconceptions right.

Furthermore, if our investigations never seem to get us anywhere, an awareness of our question will enable us to entertain the idea that it, and the entire line of inquiry that it opens up, may be fundamentally flawed.

Flawed Questions

How can a question be flawed? Many flawed questions presuppose things that aren't true. The most famous of these questions is

"Have you stopped beating your wife (or husband, or dog)?"

No matter how you answer this question, you buy in to the assumption that you *did* beat your wife (or husband, or dog) at one time. If this assumption is true then the question is fine. But if this assumption is untrue, this question shouldn't be answered. It should be *unasked*.

Stop and Think

What do the following questions presuppose? Do you think that these assumptions are true?

- "What is the ultimate source of all knowledge?"
- "Who am I, really?"
- "What makes right acts right and wrong acts wrong?"

What do you think about the question, "What is the ultimate source of all knowledge?"

This question presupposes 1) that we do, in fact, know certain things and 2) that all of our knowledge stems from one particular source – for instance sense experience, or pure, unaided reason. If it turns out that we don't know anything at all, or that there are indefinitely many different sources for our knowledge, then this question will be unanswerable.

By the way, this question is taken from *epistemology*, the philosophical subdiscipline that studies knowledge.

What did you decide about the question, "Who am I, really?"

This question assumes that there is some fact to the matter about you who are – that you have a "true you" that can be distinguished from other "false you"s. If, in fact, there are *many different you's,* or if there is no single you, then this question is flawed.

This question considers personal identity, a topic covered by the philosophical subdiscipline of *metaphysics*.

And finally, what did you make of the question, "What makes right acts right and wrong acts wrong?"

This question is taken from the philosophical subdiscipline of *ethics*, or *value theory*.

It assumes 1) that some acts really are right or wrong, and 2) that there is one property shared by all right acts, or by all wrong acts. But maybe these assumptions are false.

Maybe nothing is right or wrong. Maybe things are right or wrong for a host of different reasons.

Many of the most profound insights have been achieved by realizing that the very question with which one began trapped one into making certain false assumptions or into thinking about things in a counterproductive fashion. So if you continually fail to find a satisfactory answer to a question that interests you, stop and consider if that question assumes something false.

Choosing a Question

The question with which we begin can be one to which we think we already know the answer, or it can be one for which we'd like to learn the answer. It shouldn't, however, be an elementary question for which we could easily look up the answer, nor, for our purposes, should it be an unapproachably complex or specialized question. Ideally, it should be something about which we could have an interesting and sustained conversation with an open-minded friend.

For the sake of discussion, my question will be:

> "Should we aspire to be as independent and autonomous as possible?"

Stop and Think

What question would you like to answer? You may choose among the following questions or come up with one of your own.

- "What is the most important book ever written?"
- "What is the most important academic subject?"
- "Is organized religion mostly helpful or mostly hurtful?"
- "Should high schools intensify their graduation requirements in English?"
- "Should all college freshmen live in a residence hall?"

Formulating an Answer

Once we've decided on a question, the next thing we need to do is consider various answers to our question. My possible answers are

> "Yes, we should aspire to be as independent and autonomous as possible"

and

> "No, we shouldn't aspire to be as independent and autonomous as possible"

At this point, we might want to learn and think more learn and think more about the issues involved. I, for instance, might want to read about some theories of human nature, learn about different ethical systems, and reflect upon my own experience. If you think that you dislike research, you might be pleasantly surprised by how fun this

can be. It's often frustrating to read with no particular purpose in mind because there's a tendency to think that you have to remember *everything*. Reading in order to answer specific questions, however, can be enjoyable and fascinating.

After you've learned more about the issues involved, you'll probably be inclined to favor one of the possible answers to your question. This answer will be your ultimate conclusion. (By the way, if you're writing a paper, this answer, or ultimate conclusion, will be your *thesis*.)

I've already done some research on my question, and I've thought about it quite a bit, so I already know that my ultimate conclusion is "No, we shouldn't aspire to be as independent and autonomous as possible." Since this will be my ultimate conclusion, I'll write it down first in my list of ideas and put a "U" next to it.

"Should we aspire to be as independent and autonomous as possible?"

U 1. We shouldn't aspire to be as independent and autonomous as possible.

Stop and Think

Look at your question. What are some possible answers to it? Which answer do you like best?

Step 2 – Constructing the Chain of Reasoning

Constructing a Diagram

Once we have an ultimate conclusion, we can start to build an argument in its support.

The process of constructing an argument involves a number of steps, some of which we can't do right now because they require skills that we'll learn in upcoming chapters. We can, however, construct a small chain of reasoning for our conclusion by asking "What is one, and only one, reason to think that this idea is true?" When I ask this about my conclusion, my answer is "All virtues require a level of interdependence." I'll write this as the next idea in my list, as follows.

"Should we aspire to be as independent and autonomous as possible?"

U 1. We shouldn't aspire to be as independent and autonomous as possible.
2. All virtues require a level of interdependence.

Because I'm not giving my audience, or myself, any reason to think that this idea is true, it's a premise, and because it's being offered as a reason to believe the ultimate conclusion, there's an inference from 2 to 1. Recording all this on my list, I get the following diagram.

"Should we aspire to be as independent and autonomous as possible?"

U 1. We shouldn't aspire to be as independent and autonomous as possible.
P 2. All virtues require a level of interdependence.

2
A↓
1

Stop and Think

Take a look at your ultimate conclusion. What is one, and only one, reason to think that this idea is true? Record that idea as the next idea in your list and diagram your argument.

Evaluating and Improving our Arguments: False premises

With our diagram in hand, we can evaluate our arguments.

For now, we'll just evaluate the *premises* of the arguments we construct, and we'll only be concerned with whether or not our premises are *true*, not with whether or not they're rationally acceptable to our audience.

So, what about my argument?

"Should we aspire to be as independent and autonomous as possible?"

1. We shouldn't aspire to be as independent and autonomous as possible.
2. All virtues require a level of interdependence.

2
A↓
1

Looking at my premise, I'm not sure that it *is* true because I'm not sure that all virtues *do* require a level of interdependence. Courage and creativity, for instance, look like they may be exceptions.

Actually, it's a common habit over-state one's case, as I just did. It's analogous to shouting. Just like people often speak very loudly in order to get attention or be taken seriously, people often make *very* strong claims, like "*All* virtues require a level of interdependence," and (as one of my students actually tried to claim) "People under the age of 18 are *the most oppressed people in the world.*"

There's nothing wrong with making a strong claim if the claim is true, but we should avoid saying more than we honestly believe. Bold falsehoods can't prove anything, and

often the modest truth is all we need. People under the age of 18 *aren't* the most oppressed people in the world, but they probably *do* face special challenges, including difficulty having their ideas taken seriously and (in the U.S.) the inability to vote. Although weaker than her initial claim, this was strong enough to make my student's case. Similarly, while not *all* virtues require a level of interdependence, *some* (like generosity and thankfulness) do. Since that's enough for my argument, I'll change my premise accordingly and get the following argument diagram:

"Should we aspire to be as independent and autonomous as possible?"

1. We shouldn't aspire to be as independent and autonomous as possible.
2. ~~All~~ Some virtues require a level of interdependence.

2
A↓
1

Stop and Think

Take a look at your diagram. Is the premise false? If so, modify it.

Step 3 – Communicating the Argument

Once we've evaluated our arguments and made the necessary modifications, it's time to communicate our arguments by writing them down in normal prose passages.

Everyone has his or her own writing style, of course, but there are a few rules of thumb that we should follow.

First, we should write in complete sentences. Right now, that means making sure that all of our sentences are complete subject-predicate sentences at the very least. We'll talk about more complex sentences later.

Second, we should use our working vocabulary. In particular, we *shouldn't* use words with which we aren't completely comfortable simply to give the impression of being smart or well-read. Nothing makes someone sound *less* intelligent than they are faster than using very erudite terms in *not quite* the right way.

Thesauruses are particularly apt to encourage this behavior. Someone might use a thesaurus to write a note saying "Many benedictions for the felicitous soiree!" when "Thanks so much for the great dinner party!" would have been *much* better. Thesauruses are wonderful reference books to be used *responsibly*, not *pretentiously.* Their purpose is to remind us of words with which we're already comfortable, not to acquaint us with multi-syllabic, allegedly "substitute" words that we've never heard used in their natural context before.

Third, we should make our arguments as easy as possible to diagram. It's best *not* to explicitly label the parts of our argument as "ultimate conclusion," "premise," "subconclusion," or "inference," though, because that can sound contrived. Instead, we can use inference indicator expressions to help our reader follow and reconstruct our chain of reasoning.

Finally, we might want to add some rhetorical touches, sentences that aren't actually part of the argument but that serve to smooth the passage for the reader. Right now, that means adding some question and command sentences if we think they would help set the mood.

Turning to my diagram, I'll use these principles to write up my argument in two ways, first using a conclusion indicator expression and then using a reason indicator expression:

> "Do you agree with the popular opinion that we should be all as self-reliant as we can? In fact, some virtues require a level of interdependence so we shouldn't aspire to be as independent and autonomous as possible."
>
> "Do you agree with the popular opinion that we should be all as self-reliant as we can? Actually, we shouldn't aspire to be as independent and autonomous as possible since some virtues require a level of interdependence."
>
> 1. We shouldn't aspire to be as independent and autonomous as possible.
> 2. ~~All~~ Some virtues require a level of interdependence.
>
> 2
> A↓
> 1

Stop and Think

Given your diagram, write a passage containing your argument and using a conclusion indicator expression to mark the inference.

Then, just for practice, write a passage containing your argument and using a reason indicator expression to mark the inference.

Summary

We've now seen the first steps of argument construction! In particular we've learned how to

Determine the ultimate conclusion, specifically

- We should always try to begin with a question.

- Once we have a question we like, we consider various possible answers until we settle on one we like best.

Construct the chain of reasoning, specifically

- We can construct a premise / ultimate conclusion diagram by asking “What is one reason to think that my ultimate conclusion is true?”
- If our premise strikes us, upon reflection, as being false, we can modify it to something true.

Communicate the argument, specifically

- When we have the diagram of an argument that we like, we can write the argument down in a passage, being careful to write in complete sentences, to use only our working vocabulary, to make our argument as easy as possible to diagram by using inference indicator expressions, and to include whatever rhetorical touches are necessary to smooth the passage out.

We’ve covered a *lot* of material in this chapter! This would be a good time to review the handbook for this chapter and then to practice the skills and concepts covered here by working through some of the exercises, questions, and activities.