3 | Modes of Persuasion

In this chapter we'll be covering about three thousand years as we move back and forth between ancient Athens and the planet Vulcan. But don't panic. By the end, the whole experience should seem highly logical.

But before we go to either place, a quick digression.

Many years ago, I and a fellow Trekkie decided we would list all of our favorite science fiction clichés. This list included evil aliens traveling thousands of light years to blow us up and take our stuff (think *War of the Worlds*, *Independence Day*, or that that much-maligned masterpiece *Battleship*), sweet and cuddly aliens like *ET*, and aliens trying to save us from ourselves (like Klaatu in *The Day the Earth Stood Still*).

Then you've got all those time paradoxes where going back in time to kill Hitler (or Hitler's grandfather) has unexpected consequences, although you could also cause as much damage to the time stream by going into the past and just stepping on a twig. (*Star Trek*, by the way, got around this problem by establishing that you only screwed up time if you ended up kidnapping or disintegrating a famous person.)

But my favorite of all sci-fi clichés was the person discovering an ancient book that provided forgotten wisdom from a bygone era, an era usually intellectually or technologically superior to our own.

The reason I love stories of this type is that such a discovery actually happened, more than once as a matter of fact. And many of the most significant tomes of ancient knowledge that transformed history were written by the same man: the fourth-century BCE Athenian man of letters Aristotle.

Now as much as I like talking about ancient philosophers like Plato and Aristotle, this is a book on critical thinking rather than philosophy or history, so the great thinkers of Greece who have informed much of what you'll be reading will not be given as much space as they deserve (although some suggested reading and courses included at the end of this book can help you get started learning more about them).

When you're talking about the study of critical thinking, however, in fact when you're talking about the study of virtually anything, it's impossible to avoid Aristotle, the great academic and systematizer.

Virtually every subject you studied or are studying in school— biology, political science, and linguistics to name but a few— became distinct disciplines when Aristotle wrote books about them in which each subject was broken down and organized into a systematic set of observations, classifications, and rules. In fact, the very notion of academics is drawn from the school where Aristotle studied: the Academy founded by his equally famous teacher Plato.

Like many ancient works, Aristotle's writing was lost for several centuries during the so-called Dark Ages. But once it was rediscovered and translated into languages educated people of the era could read, it reminded them that there once existed alternative ways of looking at the world, a reminder that would have profound consequences for mankind.

While Aristotle's rediscovered scientific writing would also prove important, we'll be focusing on what he had to say on the subjects of logic and rhetoric. For just as he dissected animals and plants in order to find commonalities and create the system we

now call biology, Aristotle was also the first person to formally codify rules for thinking logically and speaking persuasively.

Once his logical works were rediscovered and put back to work in the twelfth century (often by religious thinkers who used Aristotle's systems to prove things like the existence of God), it took just a few more centuries for those tools to be used to answer other questions like how the world and the heavens worked, creating the foundation for modern science.

While Aristotle's work on logic and rhetoric will inform several chapters dedicated to those topics, in this chapter I want to focus on another Aristotelian concept that will also be coming up again and again in this book: *logos*, *pathos*, and *ethos*, Aristotle's three modes of persuasion.

Now don't get all panicky about the introduction of Greek terminology into this discussion. I promise that the vast bulk of words you'll be reading in these pages will be written in English.

But these three important categories of logos, pathos, and ethos can be difficult to translate into a English equivalents. For this reason, I will talk about each individually before we see how they all tie together to help us determine if a speaker, including a presidential candidate, has succeeded or failed in delivering a persuasive message.

Let's start with logos, which is the easiest to translate into that familiar critical-thinking term of logic.

At the highest level, logic is simply the glue that ties a set of statements that I am asking you to accept to another statement that I claim you should or must believe if you accept my initial premises to be true.

But beyond this simple description, we need to keep in mind that when we talk about logic, we're talking about more than one thing.

For example, you can have *inductive logic* in which general rules are inferred from observable facts. An example of this would be "Since it has always rained in Massachusetts at least once a

year, then it will probably rain in Massachusetts sometime this year." Now you might ask how I can possibly know whether this is the year we won't get a drop of rain in Massachusetts. The answer is I can't. But that's how inductive logic works: by making reasonably educated guesses or claims supported by probability (often led with appropriate qualifiers such as "probably") drawn from what we know to be true.

Deductive logic, in contrast, does not deal with such ambiguity. If you believe statements I'm asking you to accept ("all dogs are animals" and "Francine is a dog," for example), then deductive logic forces you to believe that another statement ("Francine is an animal") is also true.

People often describe Sherlock Holmes, a man who could tell you everything about yourself by simply observing seemingly mundane details about your clothes, the dirt under your fingernails, or the scuff on your shoe, as being a master of deductive logic. But more often than not, he's using a mix of inductive and deductive reasoning to come to his conclusions.

The logic Aristotle is famous for is commonly referred to as *formal logic*. It's what you are using when you think about statements like that dog, animal and Francine example I just mentioned. In formal logic, statements like "all dogs are animals" and "Francine is dog" are the *premises*. When they are followed by a conclusion such as "therefore, Francine is an animal," the collection of statements is called a *syllogism*.

Aristotelian syllogisms still pack a lot of power after twenty-five hundred years as you'll see in the next chapter, which discusses the mechanics of logic in more detail. But keep in mind that syllogisms also have their limitations.

For example, the rules for writing a syllogism like the ones used to determine that Francine was indeed an animal could also be applied to things that don't exist or to nonsense words. In other words, if "all mermaids are mystical creatures" and "Gwen is a

mermaid," then Gwen is a mystical creature whether or not mermaids, mystical creatures, or Gwen for that matter exist.

But here on Earth, mermaids do not exist (as far as we know), which means formal logic can be used to "prove" not just accurate conclusions but nonsensical ones.

Formal logic has other limitations, many of which have to do with the word "some." For example, in formal logic it doesn't matter if the statement "some independent voters will vote for the Republican candidate" refers to two independent voters or almost all of them. But if you're the Republican or Democratic candidate in a US presidential election, the only important question is how many people that word "some" represents.

Fortunately, in the last two hundred years, we have seen an explosion of new logical systems that help us make sense of far more than Aristotle's original approach allow. The next chapter will take a look at some of the ones that can be applied to everyday critical thinking. And if logic captures your interest, you might want to dig deeper into the subject or even take a logic course or two. They're a lot of fun, and, in addition to giving you a vocabulary that can help you understand the world, they might also help you land a job, especially since the most popular logic courses taught today are known by another name: computer programming.

Getting back to logos, when we talk about logic in the context of political presentations and arguments, we are back to that simpler definition of whether or not an argument holds together (regardless of which logical system might be behind it). Simply put, if an argument makes sense, if you are convinced (even if you may not be 100-percent certain) that the premises lead to the conclusion, then the argument possesses logos.

Over the years, many people have argued that our political discourse should consist of nothing but logos. In fact, frequently when I've talked politics with a scientist or engineer, we end up debating the question of why we can't solve our political problems like we solve scientific or engineering ones: by applying sound,

rational logic to come up with and decide on the best solution, followed up, perhaps, by testing our hypotheses and changing course if a policy we came to through logic alone turns out to not be working as we expected.

There are a couple of significant problems with this logos-based approach to political decision-making. First, in politics, we rarely make a decision between one option that is unquestionably good and another one that is unquestionably bad (which would mean our only challenge is to use reason to determine which is which). In fact, arguments about these types of black-and-white issues are usually trivial or at least easily resolved.

In real life, we often have to choose between competing yet *equally valid* goods. For example, a school may need to decide whether it should spend money on new band uniforms or accept an invitation to play in the Rose Bowl, which means using that money for airfare instead of uniforms. Or we may need to make a choice between what we perceive to be greater vs. lesser evils, such as determining if we should cut one government program vs. another, even though both programs help to save lives.

Secondly, despite the general tendency of modern people to treat logical arguments as superior to emotional ones, we also tend to dislike politicians who seem too focused on logos, dismissing them as being wonks or robots rather than "real people" (just ask Al Gore).

Speaking of emotion, it's now time to look at Aristotle's second mode of persuasion: *pathos*, or emotional argument.

Generally, we tend to be suspicious of emotion-based persuasion and with good reason. After all, we've all had experiences when our emotions got the better of us, causing us to make bad decisions or worse, causing us to harm ourselves or others. So if we feel that a speaker is trying to play off our emotions, our instinct is to get defensive in order to avoid being manipulated.

But this suspicion, as understandable as it might be, makes the mistake of assuming that all emotions are equal.

If you think about it for a moment, though, they're not. After all, we all possess emotions or human traits driven by emotion that are positive, such as love, devotion, dedication, courage, and curiosity. We also have experience with "bad emotions" such as anger, hatred, or fear.

When people (including politicians) appeal to our better nature, asking us to make sacrifices in order to help others who are less fortunate than we are, they are making an emotional argument, one that appeals to a good emotion such as compassion. Much of our public discourse would be pretty barren without such requests for us to tap our well of emotions and draw up good ones such as sympathy and caring.

But politicians can also target our darker emotions, asking us to identify with a tribal "we," for example, vs. a villainous "they" whom we should hate and fear.

Now a list of emotions or emotion-driven characteristics cannot always be easily categorized in such black-and-white terms. Patriotism, for example, can motivate the highest levels of commitment and self-sacrifice or it can be the last refuge of a scoundrel. Generally, though, most of us have a pretty good sense of when an emotional argument is targeting our best or worst natures.

So now that we have an understanding of logos and pathos, we can begin to determine when an argument might possess too much of one or the other. We've already noted that too much logos makes you come off as mechanical and unsympathetic. But too much emotion can also limit an argument's effectiveness by making you seem woolly-headed or manipulative.

As we'll see, there is no strict formula for determining the right amount of logic or emotion we should blend into an argument since this all depends on what you are arguing and the nature of the audience you are addressing. But we do have a unit we can use to

measure whether we have struck the right balance between these two persuasive techniques as well as other components of our argument: *ethos*.

If you recall, ethos was Aristotle's third mode of persuasion. Unlike logos, which targets the head, and pathos, which targets the heart (or gut), there is no part of the body with which we can immediately associate ethos.

In fact, ethos is not really something you can put into your argument as you can the right proportions of logic and emotion. Rather, ethos is something you are given. Specifically, it's something you earn from the audience you are trying to persuade.

The word "ethos" translates to "authority," but this can be misleading, implying that authority about a specific subject (such as expertise in a topic being debated) automatically provides the speaker a large amount of ethos. Actually, though, while expertise *might* contribute to someone's ethos, ethos is primarily earned by the quality of the presentation itself.

So how can you earn ethos with your audience?

We've already talked about a couple of methods. If your argument is based on sound logic (logos), for example, that helps contribute to your ethos quotient. If I hear an argument that is muddled or confusing, I tend to think the speaker might be a shallow thinker (or worse, may be trying to pull the wool over my eyes), which makes me suspicious of him or her. And if you don't trust the logic or honesty of someone, that's a sure sign that you're not awarding them much ethos.

Similarly, if one is making an emotional appeal, it should be primarily appealing to good emotions such as love, concern, and sympathy vs. bad emotions such as hatred and fear. Appealing to good emotions and not letting your argument be entirely driven by emotion (that is, striking the right balance between logos and pathos) is also a good way to earn ethos from an audience.

But there are other ways to achieve ethos that are just as important as getting your balance of logic and emotion right. Most

importantly, you need to demonstrate that you identify with your audience by speaking their language and showing an understanding of and, ideally, sharing their concerns.

To illustrate what I'm talking about with regard to language, those of us who intersect with the business world are often surprised by the amount of jargon spoken at many business meetings. For example, businesspeople are endlessly engaging in "deep dives" to understand a problem, "socializing" alternatives, and trying to get everyone in the room to "get to positive" (vs. simply reading, talking, and deciding yes or no).

Anyone who is a *Dilbert* fan understands the humor in this kind of artificial language. But automatically scorning this type of communication fails to recognize that jargon is often the means by which people in a group (such as a profession or a company) demonstrate to one another that they are all in the same club. In other words, it's a tool used to generate ethos that can lead to positive outcomes such as camaraderie and cooperation.

Most fields share their own language, their own touch points, their own jokes, and their own values. One should not simply dismiss those unique characteristics, whether they belong to a company, profession, or community, just because they can sometimes seem needlessly obscure (or worse, a way to exclude rather than include people).

So in addition to getting one's logos- and pathos-based content and balance just right, demonstrating empathy with those you are trying to convince is an important component of ethos, often the most important.

To give you an idea of what I mean, imagine there's a community group concerned about a local environmental issue. This group is fortunate enough to have as a member a local college professor who also happens to be a Nobel Prize-winning environmental scientist. In order to get the town to act on the problem they would like resolved, they arrange to have this professor make a presentation to town leaders.

Now this speaker might have enormous authority in the sense that her Nobel Prize identifies her as an unquestionable expert on the subject. But what would happen if this professor, unfamiliar with how town meetings work, begins to talk to the audience as though they were a group of students taking one of her undergraduate classes?

Chances are the audience would not respond well to this approach, especially if they sensed the speaker was being condescending to them by dismissing rudimentary questions or beclouding the air with statistics or jargon that no one else in the room could be expected to understand.

In this example, the speaker might have all the authority in the world, but she would have failed the ethos test by not understanding what an audience needs, which includes the very human need to not be talked down to. And the use of jargon in this case would be a negative with regard to ethos since it involves the use of terminology that separates her from the audience rather than uniting her with it.

So, in terms of ethos, not having a strong enough connection with the people you are trying to convince can be fatal to your argument. But if too much logos makes you seem like a robot and too much pathos makes you come off as a demagogue, trying too hard to generate ethos by demonstrating your connection to the audience can come off as pandering.

The Greeks had a way to help us sort through all of these conflicting needs and requirements: a philosophy of keeping life in balance summarized by the phrase "nothing in excess."

Speaking of excess, it's now time to take a look at a modern politician who, while not necessarily practicing moderation in his personal life, did a fabulous job (in my opinion, anyway) of balancing logos, pathos, and ethos: former president Bill Clinton.

Even today, President Clinton tends to generate strong emotions from both his supporters and critics. But we should not let our own pathos-driven evaluation of him get in the way of understanding

why he was so successful as a politician, a success that derived from his ability to manifest and balance all three modes of persuasion skillfully.

For example, Clinton was often described (sometimes positively, sometimes negatively) as a policy wonk, someone who could quickly master details of any given debate to such a degree that he was able to follow and even lead discussions of complex issues with experts in the field.

Occasionally, this would cause him to go on too long in a speech or come off as a smarty-pants in meetings. But even critics who had to challenge his arguments understood the strength Clinton brought to debate by using his own deep understanding of an issue to communicate his proposals, that is, his appeal to logos.

At the same time, Clinton could pull at our heartstrings, especially with regard to policies that he wanted to convince us had the potential of making the lives of ordinary people better.

Today, it's become an expectation (even a cliché) that candidates during a political convention will tell stories about "ordinary people" in the audience who suffer from a particular disease, have benefited from a particular policy, or made significant sacrifices for their community or nation. But unlike most candidates who seem strained when going through this ritual, Clinton was able to convince us that these emotional stories were illustrative of bigger problems and that his own emotional reactions to them were absolutely genuine.

Which brings us to ethos. And what phrase better encapsulates that concept than "I feel your pain."

But feeling our pain is not the only way candidate and then president Clinton tried to convince people he was "one of us."

Every candidate during the campaign season is required to attend the requisite number of country fairs where he or she shakes hands and eats barbeque. And then you've also got all those stops at local diners to swill down cups of coffee or at local fast-food joints where you pound down burgers or local specialties.

Again, while every candidate has to participate in such activities, it becomes very clear who is in and out of his or her element when forced to mix with the public. Bill Clinton (and, to a certain extent, President George W. Bush), seemed at home scooping up bacon bits while walking down the salad bar or doing his best to shake the hand of every last person at a local parade or street festival. But others, like George H. W. Bush and John Kerry looked like they couldn't wait for the whole ordeal to be over so they could take a hot bath and eat a meal at a five-star hotel.

We tend to dismiss as trivial simple things like the candidate's approach to food and clothing when campaign season is in full swing. But eating and dressing like the people you are trying to convince and making it seem the most natural thing in the world is probably one of the most under-analyzed elements of political success.

For these are the everyday things that generate ethos, that is, a human connection between the convincer and the convincee. So I want to end this discussion of ethos with a couple of rules of thumb:

- If a candidate looks like she really can't wait to sink her teeth into a local delicacy, it's an ethos success.
- If she makes a face or gives a knowing smirk to someone in her entourage before putting said delicacy into her mouth, it's an ethos failure.
- If a candidate looks comfortable wearing blue jeans vs. dress slacks at appropriate occasions (like a rodeo), it's an ethos success.
- If the candidate looks like he had someone iron or press his blue jeans before he put them on, it's an ethos failure.

So if Bill Clinton is an example of someone who got Aristotle's three modes of persuasion right more often than not, how have

other candidates for president stacked up by these measures and what might that tell us about the crop of candidates you are likely to encounter during the next presidential contest?

Before we go any further, I need to make it clear that logos, pathos, and ethos are not intrinsic elements of someone's personality. Rather, they are things you use or try to gain when constructing a persuasive argument. So while one candidate may be more likely to use (or get away with using) one persuasive mode vs. another, all candidates for office continually strive to correctly balance logos, pathos, and ethos whenever they make a speech, take out an ad, or perform in a debate.

With that caveat in mind, when Critical Voter first came out as a podcast during the 2012 presidential election, I spent some time handicapping both President Obama and his opponent Mitt Romney with regard to their success (or lack thereof) in balancing logos, pathos, and ethos.

On the logos front, while both candidates were highly intelligent men who repeatedly demonstrated mastery of policy detail, I ended up giving Romney the edge with regard to this mode of persuasion. This was originally a close call, but once Obama and his allies tried to turn Romney's seeming mastery of facts into a negative (by questioning their veracity and arguing that the Republican's reliance on fact-based arguments was meant to obscure his real positions), that was a good sign that even they perceived logos to be a strength of their opponent that needed to be neutralized.

On the pathos front, the nod went to President Obama, but again just barely.

This surprised me, given the level of excitement and enthusiasm (both emotional responses) generated by Obama's victory in 2008. No doubt the election of the country's first African-American president (which even many of his critics celebrated) contributed to that emotional pop, as did then-candidate Obama's energized public speaking style which came after many years of drought with

regard to presidential candidates showing any kind of flare for oratory. Also (as even Obama admitted post-election), it's easy to project your hopes and dreams onto a new fresh face but much harder to gin up similar zeal over an incumbent who just spent four years in the White House making real decisions and compromises.

In fact, by the time the 2012 election rolled around, even friends were describing President Obama as "cool" and "detached," someone who saw himself as "above the fray" of politics. While there is nothing intrinsically wrong with possessing a cool persona (especially if it provides logos-based perspective), it is not necessarily the stuff of emotional connection (i.e., pathos).

Which gets us to ethos, which neither candidate had in abundance in 2012. I suspect this is because each man came to politics with a demeanor developed during a previous career as a business executive (Romney) or college professor (Obama). While the world certainly needs able people to fill those two roles, the assumed hierarchy and authority associated with those who can hire and fire you (or give you an A or F) does not contribute to the kind of connectedness required to generate powerful ethos bonds.

In fact, one has to go back thirty years to find another president or presidential candidate (besides Bill Clinton) who seemed to genuinely connect with voters. While Ronald Reagan never left the Clintonian impression that he'd be thrilled to share pie and face-to-face conversation with every voter in the country one at a time, "The Great Communicator" showed a remarkable ability to convince large numbers of people that he shared their belief that being American meant something special.

I don't think it's an accident that this dearth of ethos (with only two candidates possessing noticeable amounts of it in the last thirty-five years) coincides with the rise of professional and scientific campaigning in which armies of statisticians, strategists, and media coaches form phalanxes around candidates to protect them as much as possible from the unexpected by, among other things, ensuring that they stay "on script." For while these teams of

specialists are well versed in crafting combinations of words that will "move the needle" with specific subsets of voters, the kind of authenticity that leads to ethos must come from somewhere other than polls, computers, and spin.

Fortunately, it looks like this problem is going to get licked sometime in the next few centuries when cooperative politics will lead to not just a well-led nation, but one that will serve as the model for an entire federation of planets. Which reminds me, it's time to talk about the guy who popped into your fast process the first time I used the word "logic" (don't bother to deny it!): *Star Trek*'s Mr. Spock.

Fans of classic *Trek* can tell you the story of how Spock was originally intended to be a minor character on the original show, but when audiences showed a fascination with this man from Vulcan, his role in the series dramatically increased.

It may be that Spock's exotic appearance or Leonard Nimoy's acting chops led to the increased significance of this character. But I suspect there is another reason for this phenomenon, one that has to do with things you've been reading about in this chapter.

For Mr. Spock came from a planet that had allegedly committed itself entirely to logic (logos), and as I mentioned before there has been a fascination in modern times with the question of why a society cannot make all of its decisions based solely on reason.

This question was especially on people's minds when *Star Trek* aired in the 1960s, a period when engineers and scientists were putting men on the moon but our own terrestrial politics seemed to be spinning out of control with stories of war, riots, and revolutions competing for space in the newspapers with tales of our latest technological triumphs.

In such an environment, why wouldn't a society like that of Planet Vulcan seem appealing to us?

But here's the kicker. For despite how much Spock and his fellow Vulcans yammered on about logic and their devotion to it throughout every *Star Trek* TV series and film, you rarely saw

them do anything that seemed remotely related to what we think of as logic. They didn't, for example, engage in complex proofs (based on either formal logic, or any modern logic created between the nineteenth and twenty-fourth centuries) in order to reach a decision.

In fact, Spock on many occasions demonstrated bravery, self-sacrifice, and concern for his shipmates, qualities that well up from some place other than the intellect. And don't tell me that this was only because Spock was half human, for you saw this same set of qualities (and even negative emotion-driven qualities) in many of the purebred Vulcans we met through *Trek's* forty-plus-year run.

So what we seem to have with Vulcan society is not a planet that has committed itself to pure logos but rather one that has decided to suppress pathos. Or, more specifically, to suppress the bad emotions that can lead societies to conflict and war, even if that meant the suppression of good emotion in the process.

But this suppression of pathos comes at a cost, and I'm not just talking about the lunacy brought on by the *pon farr* (the seven-year Vulcan mating cycle/ritual). For as a creature trying to suppress pathos and live by logos alone, Spock was a perfect foil for another *Star Trek* character, Dr. McCoy, who seemed to both delight in pathos and in taunting his Vulcan shipmate for his supposed lack of it.

But neither of these characters led the Enterprise did they? No, for that job was taken by Captain Kirk, who alone among the *Star Trek* cast seemed to display the right combination of logos, pathos, and ethos required to be the leader who could work out complex stratagems, connect with both his supposedly logos-based science officer and pathos-based medical officer, and convince almost anyone in the universe (especially space women of various colors) that he was their soul mate.

Keep this in mind the next time you need to choose (or become) the leader of, if not a starship, a company, club, or sports team. Or

when you need to evaluate who to select as the president of the United States of America.

Careening back a few centuries to our own planet's history, remember back when I said that the re-discovery of Aristotle and other classic texts helped begin a process that led to the Scientific Revolution?

Well a funny thing happened once that Scientific Revolution, coupled with what we now call the Enlightenment, started grappling with an awareness of how much Aristotle and the other ancients got wrong.

The notion that the earth was at the center of the universe is one idea defended by Aristotle and his successors that we now know to be bunk. But he also made other whoppers, some wacky (like his notion that thinking originates in our chest) and some hard to understand much less forgive (such as his theory that some people are naturally born slaves).

In truth, Aristotle's science was quite a bit less out there than that of other Greek philosophers (my favorite being Thales, who thought magnets were alive and that the world was made of water). And at least as far as his works on logic go, Aristotle was more about how to think than what to think.

But as modern science began to uncover truths that went against what had become Aristotelian dogma, reverence for this ancient thinker turned to hostility that eventually hardened into the notion that we had so far surpassed the marbley old men of the ancient world that we no longer needed to make studying their works the centerpiece of education.

Which is one of the reasons why many of you have probably not been exposed to concepts such as logos, pathos, and ethos unless you've gone out of your way to read or take a course on the subject of philosophy, logic, or rhetoric.

In fact, most people are unaware of a wealth of wisdom that is no longer lost but is hiding in plain view. All of the still-existing works of Aristotle and his fellow great thinkers can be found in

any bookstore or library, and classes that teach their principles and arguments can be found in a number of places for anyone who wants to find them.

In other words, most people today are like that kid in the science fiction tale who stumbles upon ancient books and uses them to gain wisdom or power (for good or for ill). The only difference is that this wisdom is readily available to all of us, as long as we have the curiosity to locate it and the wherewithal to learn something from it by, among other things, continuing to read this book.

So expect to encounter Aristotle again, starting with the next chapter in which we'll take a "deep dive" into how you can use logic to make sensible choices as well as tell the difference between truth and hooey.