

FREE FIRST CHAPTER

CONQUER LOGICAL FALLACIES

To Understand Reasoning Is To First Understand Logic

28 Nuggets Of Knowledge To Nurture Your Reasoning Skills — Chapter One. About a 9-minute read.

A young man and a beautiful maiden fell in love with each other, but, alas, she was a princess and he, a commoner.

The king heard of this affair and, livid with rage, had the man captured and brought before him.

"You have committed an unforgivable crime and shall be executed," said the king. "But because I am a righteous and merciful king, I will allow you one kindness, and that is to choose the manner of your death. You are to make one statement. If you tell the truth, you shall be sent to the gallows to die by hanging. If you tell a lie, you will be burned at the stake. Go ahead, then. Make your statement."

The young man thought briefly, then said: "I will be burned at the stake." The king, hearing this, thought deeply, then set the man free.

Many of you readers by now will have a feeling of déjà vu. Of course, you had already heard this story or some variation of it sometime before. It is a version of the liar's paradox. In the story above, the young man was released by the king because his statement put the king in a quandary. If his statement was ruled a lie, he would be burned at the stake, turning his statement into the truth. But if it were the truth and he was sent to the gallows, he would



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have told a lie because he said he would be burned at the stake. Therefore, the righteous king had to let him go or risk putting a man to death against the terms of his own proclamation.

The liar's paradox is a popular logical puzzle, but many who have already heard it before are again confused upon hearing it again. They could not recall the answer to this familiar story, because they would have forgotten the logical connections made before. Why? Because our human nature makes us forget what we have learned if we learned the lesson only once. Learning does not take hold if we fail to address the lesson again and to practice it repeatedly, frequently, and in different contexts.

"Men are apt to mistake the strength of their feeling for the strength of their argument. The heated mind resents the chill touch and relentless scrutiny of logic." — William E. Gladstone

You may be reading this book because you were intrigued by its reference to "Our Irrational Side." We are rational beings and make decisions consistent with reason and logic, but we often find ourselves caught in the repercussions of irrational actions and decisions.

- Students will forego preparing for an examination knowing full well the consequence is a failing grade. Still, they convince themselves with the fallacy that they could still pass the test by cramming or cheating.
- Employers know the opportunity cost in turning away potentially outstanding applicants because of a first impression bias, yet they repeat the habit.
- Consumers make purchases that they had no intention of making because they were swayed by celebrities and influencers posing as authorities. All of us have been there and had subsequently experienced buyers' remorse.

It is not easy to constantly think and act logically. We are the product of different cultures, experiences, educational backgrounds, and upbringing. We are each equipped with different sets of values and beliefs that combine our upbringing and social environment. Yet, logic is objective, scientific, coldly discerning. Sound reasoning often leads to one solution, the right solution.

Sound reasoning has its benefits. A right-thinking student will hit the books before an exam. Employers will recruit the best applicants based on merit after careful deliberation. And consumers will realize that models, actors, and television personalities cannot replace real engineers, physicians, and similar experts.

This book aims to help everyday people make sound everyday decisions. It discusses:

- Why people repeatedly make logical mistakes.
- What logical principles and tools can help us reason better.
- What formal and informal logical fallacies we frequently encounter, and how we can address them.
- What biases we are most prone to have, and how we can minimize them.
- What steps we can take to think logically as a habit.

The book provides a pragmatic description of the fundamental logical concepts and the most frequently encountered fallacies and biases that impact our daily decisions.

The author has a doctorate and has taught in college and graduate school for 40 years. Outside the academe, she has had field experience in business management, engineering, law, finance, and marketing. She has been married for 35 years and has raised three children, now professionals in their own right. Her wealth of experience and academic foundation enable this book's grounded approach through straightforward explanations and everyday examples.

This book is designed for the average readers who want to apply logic to their everyday lives, to tame "the heated mind" enough to relish "the chill touch and relentless scrutiny of logic." It is a journey towards mastering the skill of sound reasoning.

Are you ready to take the journey with us?

— Dianna Gene P. Aquino

To Understand Reasoning Is To First Understand Logic

A man walks into a bar and says to his favorite bartender, "Jim, give me a stiff one. I can't stand going home to my wife this early. All she does is nag, nag, nag without making any sense, and I can't get a word in."

Jim says, "Bob, Letty's just bored. I got my Emma to attend evening classes on embroidery, and now she's too busy with her cross-stitching to get on my case." Bob thought that was a great idea.

One month later, Bob walks in and says, "Jim, this is the last time I'm listening to you. I took your advice and encouraged Letty to attend community college. She enrolled in a course on introductory logic. Now she still nags at me, and I still can't get a word in. She's making too much sense!"

Bob's experience shines a light on the best reason one can have to study logic: to persuade others with our reasoning.

Reasoning is a journey of the mind. Humans are rational beings. Therefore, we all reason. We all perceive the same things in our environment, yet we interpret them in different ways. Some interpretations make more sense than others, depending on the way we reason.

Logic is simply the process of making sense. It is the science of correct reasoning, and some would call it a discipline of the mind*. Some of us reason more logically than others because we can make sound inferences from the evidence we have. With study, observation, and practice, we can acquire that mental discipline to use logic to persuade and convince others effectively.

The Four Laws Of Logic

There are three classical laws of logic: the law of identity, the law of excluded middle, and the law of noncontradiction. In 1818, the German philosopher Arthur Schopenhauer introduced the fourth law, the law of sufficient reason.

The Law Of Identity

Everything that is, exists. The law explains that everything is identical to itself. A term used in logical discourse can refer to one and only one thing. When a term means more than one thing within the same discussion, the violation introduces a fallacy known as equivocation. An example of equivocation is: "Jack eats what is right, and Jill eats what is left." Right means "correct" in the first half of the sentence and is implied to mean a direction in the second half. Similarly, left has a double meaning, the direction opposite to right, and the "remainder" (leftover).

The Law Of Excluded Middle

Each and every thing either is or is not. A proposition is either true or not true. If there are two contradictory propositions, either the first is true and the second not true, or the second is true, and the first is not true. "Arthur is a faithful husband," and "Arthur had an affair while he was married." Having an affair is the definition of being unfaithful. Therefore, either it is true that Arthur is faithful and the affair did not happen, or Arthur had an extramarital affair, negating his faithfulness to his wife.

The Law Of Non-Contradiction

Nothing can simultaneously be and not be. Contradictory propositions cannot be true at the same time and in the same sense. This is similar to the law of identity. A German shepherd cannot be a Yorkshire terrier nor a Shih-tzu (i.e., non-German shepherd). A high-rise building cannot be a bungalow (i.e., a non-high rise). But care must be taken to ensure that the propositions are truly mutually exclusionary. Benjamin Franklin is a statesman, but he is also a scientist. A scientist is not necessarily a non-statesman because being a statesman does not exclude being a scientist, and vice-versa. When two propositions can co-exist, they are not contradictory and do not violate the law of non-contradiction.

The Law Of Sufficient Reason

Of everything that is, it can be found why it is. Of the four logical principles, this is the most controversial. It is also the most complicated, so that we will explain it with an example. Suppose Joe wanted to buy a motorcycle to get around in. A man he hardly knew approached him and said that a friend of his brother-in-law's officemate mentioned Joe's interest. The stranger will

sell Joe his brand-new motorcycle for \$500 if Joe makes payment in three hours. Joe immediately jumps at the offer and says, "It's a deal!" But as a logical person, your first thought would be, "Why?" This is the gist of the fourth law. For every unexplained fact, a rational mind will seek the reason behind it. Just any reason will not do; it must be sufficient. In the example, the explanation must answer questions like: Why did the stranger want to sell it so quickly? Why at such a low price? What might be wrong with the unit? Was it contraband? Was it stolen? How did the stranger even know Joe?

Concepts Important In Logic

An appreciation of logic requires an understanding of the following concepts.

Claim

Also known as a statement or proposition, a claim asserts the truth or existence of something, whether true or false. When one or two premises support a claim, it becomes a conclusion. A simple claim is an unsupported statement: "The winner of the Miss Universe beauty contest is the most beautiful woman in the universe." A supported statement becomes a conclusion: "All the known women in the universe are those who live on Earth. All of these women competed in the Miss Universe pageant. Therefore, the winner of the Miss Universe beauty pageant is the most beautiful woman in the universe."

Inference

Inference refers to drawing conclusions from a set of information or premises and moving towards their logical consequence according to one of the recognized forms of reasoning. The following is an example of drawing an inference through deductive reasoning: "You asked me where I was last night, what I was doing, and who I was with. I infer from your line of questioning that you consider me a suspect."

Argument

An argument is a claim used to persuade or convince people regarding the truth about an issue. It has three basic elements — an issue, a premise (or premises), and a conclusion (or conclusions)*. While proponents use arguments to convince others, not all arguments are

validly structured, and not all premises and conclusions are true. Critical thinking is required to recognize and construct a valid and sound argument, such as the following.

Issue: How is gold traded?

Premise 1: All precious metals are traded in the international exchanges.

Premise 2: Gold is a precious metal.

Conclusion: Gold is traded in the international exchanges.

Two elements necessary in reaching sound, logical conclusions are truth and honesty in reasoning. This is not easy to achieve because we tend to cloud our judgments with bias, misconceptions, and a lack of sincerity to seek out the truth. Even with the best intentions, it is sometimes difficult to dissect between truth and falsity, or honesty and insincerity, even in one's mind.

Action Steps

Try the following exercise in critical thinking, devised by Ransom Patterson, editor-in-chief of College Info Geek*.

1. **Ask basic questions.** Many insignificant issues may confound a problem. The first step is to eliminate the irrelevant matters that complicate the issues. Identify the basic issue and focus on its solution.
2. **Question basic assumptions.** Assumptions are things people accept as true even without proof. Under closer scrutiny, some assumptions may be proven false or inapplicable. Learn to identify them and weigh their relevance to the problem.
3. **Be aware of your mental processes.** Human thought happens at such speed that the brain sometimes makes mental shortcuts (heuristics) to make sense of our surroundings. Cognitive biases and personal prejudices sometimes hijack our thinking process, so it is important to guard against them.
4. **Try reversing things.** A new perspective may emerge if one reverses what appears to be true at first. The bus may have hit the pedestrian, but the pedestrian may have intentionally stepped in front of the bus. The idea is to test the possibility of more than one explanation.
5. **Evaluate the existing evidence.** Try to find corroboration from other sources. Exhaust all possible evidence, and the conclusion that reconciles all of them is the right conclusion. If

the evidence conclusively eliminates alternatives, then the remaining alternative is the right conclusion.

These five mental exercises may seem easy, but making them a habit will take time, patience, and practice. Developing the inclination to think critically is the first step to using logic effectively. The next step is to structure those thoughts precisely to deliver your message convincingly.

Moving On

This brief overview of logic barely scratches the surface of this most interesting topic, but it is certainly enough to give Bob goosebumps thinking about getting into an argument with his wife. Mastery of logic is a powerful weapon for winning arguments, but more so for making sound decisions. Bob would consider it a boon to study logic like Letty. And so would you. Let's forge on to the reasoning through arguments in the next chapter.

References

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