7.2: Overview of Reasoning

Reasoning is the process of creating or generating conclusions from evidence or premises. This is the logic of an argument. That is, consistency between data and conclusion. Given all of the evidence at the crime scene described at the beginning of the chapter, what can we conclude? Reasoning constructs a logical or rational connection between the evidence and the contention. The more reasonable the argument, the more valid is the conclusion.

Checking the validity of your own arguments will allow you to improve the quality of the arguments you use. When you create logically unsound arguments, you are much less likely to convince people to agree with you. If you are trying to convince an employer that you are indeed the person for a promotion, you want to make sure your arguments are as valid as possible. Not only do you give him or her a reason to accept your argument, but also you can better defend your position if it is challenged.

When you understand how arguments are supposed to be constructed and also how they shouldn't be constructed, you will find all sorts of bad arguments vying for your attention. I am guessing that you are not surprised at how many people are swayed by bad arguments.
Ali Almossawi has written an entertaining book that introduces logic, *Bad Arguments*. Here, in the final words in the preface of the book, he explains the limits to logic.

“In closing, the rules of logic are not laws of the natural world, nor do they constitute all of human reasoning. As Marvin Minsky asserts, ordinary commonsense reasoning is difficult to explain in terms of logical principles, as are analogies. He adds, “Logic no more explains how we think than grammar explains how we speak.” Logic does not generate new truths, but rather allows one to evaluate existing chains of thought for consistency and coherence. It is precisely for that reason that it proves an effective tool for the analysis and communication of ideas and arguments”.

-- A.A., San Francisco, October 2013

1
As Spock from Star Trek would realize, "Logic is the beginning of wisdom, not the end.

Testing an argument to see if it is reasonable or logical is a great first step in deciding if you should accept or reject the claim of the argument. If the argument is not reasonable, then you can feel comfortable rejecting the claim. If the argument appears reasonable, then you can go to the next step and check for the accuracy of the statements contained within the argument. Don’t be fooled by an argument just because it is repeated over and over. Instead, examine the validity and accuracy of that argument.

The critical thinker must remember that there is a difference between the reasoning needed to establish the validity of the argument and the level of evidence needed to substantiate the accuracy of an argument. Evaluating arguments involves analyzing both the validity of the type of reasoning used and the accuracy of the evidence presented.

When an argument includes both quality evidence and a valid reasoning foundation, the argument is considered to be sound. Professor James Sawyer writes,

"Argumentation gives priority to logical appeals while recognizing the importance of ethical and emotional appeals; persuasion gives priority to ethical and emotional appeals while recognizing the importance of logical appeals."

This chapter will focus on three elements of reasoning; inductive reasoning, how we create generalizations; deductive reasoning, how we apply those generalizations; and fallacies, errors in reasoning.
“Science is simply common sense at its best, that is, rigidly accurate in observation and merciless to fallacy in logic.” – Thomas Huxley

Reference