

Chapter 7: Reason and Logic in Disputes

“What’s the Connection?”

"Logic commands us far more tyrannically than any master; in disobeying the latter we are made unhappy, in disobeying the former, fools."

— Pascal

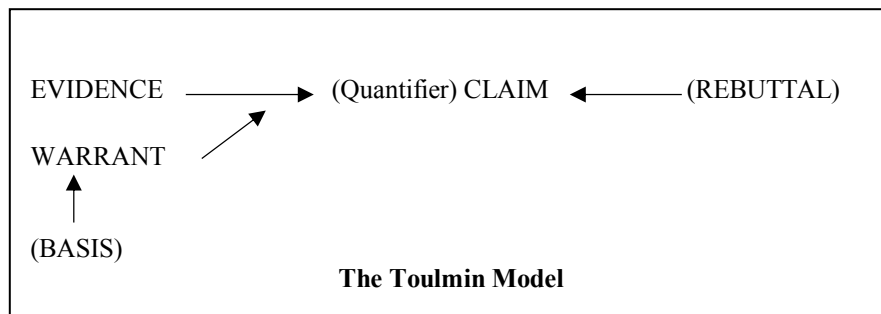
Controversy may rest not so much on bad logic as on incompletely expressed arguments. This chapter presents a rough ‘n’ ready method of uncovering the premises which support arguments..

Sometimes people imagine that those who disagree with them are “unreasonable” or “illogical.” But there are many ways to be reasonable, very often depending on the context of the dispute. In fact, it is harder to spell out what makes a particular argument reasonable than to show, if one can, what makes an argument illogical. Sometimes people do make errors in logic. More often, however, a controversy arises because their reasoning is based on different assumptions.

Most reasoning is done using what scholars call “informal logic.” Informal logic is a broad and deep topic we cannot begin to cover in a short chapter like this one. Basically, being reasonable means avoiding recognized fallacies of the sort mentioned in Chapter 11 and errors in formal logic.

An Informal Model

Based on a model developed by philosopher Stephen Toulmin we can characterize reasoning in many areas of endeavor as having the following structure: a *claim* is supported by *evidence* connected to the claim by a *warrant*, a general belief in light of which we judge what is offered as evidence to be relevant. The claim is either clearly or implicitly quantified, that is restricted in scope, by, for example such terms as, *no, some, all, a few, 70%, highly probable*, and so on. If the warrant seems weak, additional assumptions, or *bases* may be brought up to support it. Since argument normally occurs in the context of dialog, rebuttal and the answers to it is an important feature of reasoning. We might diagram these relationships as follows:



Informal argument cannot violate rules of the simpler formal logic contained within its arguments. For this reason we will look more closely at the syllogism, the simplest formal argument form.

Formal logic makes two important distinctions: an argument may be *valid*, or *invalid*. This depends on how its parts relate to one another. More importantly, *valid* arguments may be either *sound* or *unsound*, depending upon the truth of their contents.

The Syllogism

The most common experience most people have with any formalized reasoning process is when they study high school geometry. There they learn to begin with definitions, prove intermediate conclusions, called lemmas, and reach final conclusions, called theorems. The general pattern is a sequence of statements where all but the last one are called premises, and the last statement is called a conclusion. We do not have the space to investigate all of the possible kinds of arguments that can be constructed. To begin identifying the missing components of arguments, it will do to examine one of the shortest forms, the syllogism. It has but two premises and a conclusion. Despite its brevity, it is useful because any broader arguments that contain an ill-formed syllogism, are ill-reasoned.

The Structure of a Syllogism (compared to Toulmin's Model)

The Warrant is the **General Premise**, e.g. All men are mortal.

The Evidence is the **Minor Premise**, e.g. Sam is a man.

The Claim is the **Conclusion**, e.g. Sam is mortal.

Validity and Soundness

A syllogistic argument may be a bad one for two reasons: 1), it is **invalid**. 2), it is **unsound**. An invalid argument has a structure which permits false conclusions to be drawn from true premises. An unsound argument, may be valid, but has false premises. Consider the following examples.

EXAMPLES	COMMENTS
<p>1: An invalid argument form - undistributed middle -- with true premises.</p> <p>All dogs are mammals.</p> <p><u>All canines are mammals.</u></p> <p>All dogs are canines.</p>	<p>1: Note that the premisses and conclusion are true. This form is invalid however, because we can substitute other terms in parallel fashion and get clearly false conclusions: e.g.</p> <p>All oranges are fruit</p> <p><u>All apples are fruit.</u></p> <p>All oranges are apples.</p>
<p>2: A valid argument form: (modus ponens) with true premisses.</p> <p>All dogs are canines</p> <p><u>All canines are mammals</u></p> <p>All dogs are mammals.</p>	<p>2. A valid argument form guarantees us the truth of the conclusion if the premisses are true. Since the premisses are true and the argument form a valid one, this argument is also sound.</p>

3. The form of a valid argument is independent of the truth of the premises.

Guernseys are snakes.

Snakes give milk.

Guernseys give milk.

3. False premises do not guarantee the truth of the conclusion. Using false premises it is possible to construct all sorts of logical nonsense, e.g.

All flood waters play the guitar.

All guitar players eat hubcaps

All flood waters eat hubcaps.

The practical upshot is this. You may object to an argument on the grounds that it is **invalid**. This means it doesn't really connect its premises to its conclusion, no matter that premises or conclusion are individually recognized to be true. Or you may object to an argument on the grounds that it is **unsound**. That is, despite its being in good form -- connecting its premises to its conclusion -- one or more of its premisses are false.

It may be a matter of dispute whether the premisses of an argument are true. The truth of the premisses of an argument -- unlike its form -- is not apparent from the argument itself. The truth of premisses must be ascertained by methods external to the argument in question, e.g. further argument, research, recourse to authority, etc. Consequently, a controversy may result either from invalid argument (with or without undisputedly true premisses) or from unsound argument, i.e. valid argument with disputedly true premisses.

We may take Fancy for a companion, but we must follow Reason for our Guide.."

—Samuel Johnson

Enthymemes

Incompletely expressed arguments are traditionally called *enthymemes*, (en-thuh-meems). Consider the following list of enthymemes. Their premises are generally indicated with words like, *if*, *because*, and *since*. Their conclusions take the form of recommendations, or directions or include the word *must*.

- 1) Because we're in a recession, business taxes should be lowered.

This enthymeme requires a premise that makes some kind of connection between a recessions and business tax levels. Indeed, if would could imagine no such connection, it could hardly be used as an argument.

- 2) If you don't want to destroy the family, don't promote sex education.

This makes sense only if we can make out a connection between "destroying" the family and sex education.

- 3) Sam must be in school, because I just called him at home and he wasn't there.

This requires a premise that Sam can only be in one of two places: at school or at home.

- 4) How can you expect a woman to stand up to a six-foot-six ex-con who's been lifting weights for the last ten years? She wouldn't cut it as a police officer!

This enthymeme appears to obscure the assumption that being a woman connects somehow to being unable to assert oneself in a potentially physically dangerous situation and such assertion is necessary for police work. The question “How can you expect...?” in effect says “Because you can’t expect...”

Even when people study something as formal as geometry in school, the exact connection between premises and conclusion is often left to their intuition. Theorems are “demonstrated” by small but “obvious” steps. These small steps themselves are seldom explained. This teaching method -- called mathematical demonstration -- works because humans are naturally very logical. We learn to do geometry and other reasoning without studying formal logic first. In order for us to avoid lengthy technical discussion, the procedures given in this chapter will leave much to our natural ability to intuit the needed connections.

Outside of a math or logic class, people don’t appear to argue formally, that is, from premisses to a conclusion. Conclusions are often stated first with only an occasional premise mentioned to support them, e.g., “You can’t get to Johnstown because Route 40 is impassibly flooded.”

Or, even if a premise is stated first, it’s the only one we get before a conclusion is drawn, e.g. “Since Harry’s not coming, we’ll have to play pinochle.” As a result, thought processes appear random or insufficient to reach the conclusion asserted. But arguments rest on beliefs taken for granted, that is, on assumptions. It is when these assumptions are not shared that controversies may arise.

In natural contexts, arguments appear in many forms, most generally as a conclusion (often given as a recommendation) with a supporting reason, signaled by the word “because.” What has to be done in examining such arguments is to reconstruct the connection between such a conclusion and what is given as a reason. This reconstructed assumption then can be examined to see if it fits together with the conclusion and the reason given in the proper way. The extent to which such a procedure is possible with reasoning in many different contexts is a matter of controversy among scholars.

We conclude with the following suggestion. If you are criticized for being illogical, ask your critic show just how you are being so. If you avoid the most common errors listed below, you will probably pass muster.

Common Errors in Argument

1. Undistributed Middle:

- a. Apples are fruits. Oranges are fruits. So apples are oranges.
- b. Sam reads Karl Marx, so he must be a communist because communists read Marx.

2. Asserting the Consequent:

- a. All dogs are warm-blooded. Your pet is warm-blooded. So it must be a dog.
- b. John must be a businessman, since businessmen support immigration and so does John.

3. Some to All

- a. Some animals are meat-eaters. Your pet is an animal. So it must be a meat-eater.
- b. Some businessmen support unrestricted immigration. John is a businessman, so he must support unrestricted immigration.

4. Negating the Antecedent

- a. All oranges are fruit. Since this is not an orange, it is not a fruit.
- b. Since union members oppose unrestricted immigration and John is not a union member, he does not oppose unrestricted immigration.

5. Ad Hominem

- a. “You have to be crazy or perverted to think kids should be given sex education in first grade.!”
- b. John supports unrestricted immigration but he’s a jerk!

6. Irrelevant Authority

- a. You can be confident Ajax beer is best because Michael Jordan drinks it. (Is Michael Jordan a beer expert?)
- b. “Liberals are destroying morality !” says my uncle Rush, the well-known talk-show host. (What does Uncle Rush really know about either of these topics?)

Chapter Highlights

This chapter has sketched an introduction to the problems involved in evaluating arguments presented in a dispute. It is important to understand:

- A. the distinction between the validity and the soundness of an argument.
- B. the “logical thinking” is more practically understood as avoiding certain errors than as meeting clear logical criteria.

Further reading, particularly in the area of informal logic, is strongly suggested.

Other Related Chapters in This Text

- 4. Definitions
- 8. Presuppositions
- 13. Operationalizing

Keywords for Further Data Base Search

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|------------------------|--------------|---------------------|
| hypothetical syllogism | modal logic | casuistry |
| propositional calculus | induction | conceptual analysis |
| quantifiers | implicatures | speech act |

Test Yourself

A, Analyzing Reasoning

Using Toulmin's terminology, identify the elements of an argument in the following conversation:

John: We have to go help Harry. His car isn't moving and the hood is up.

Sam: Are you sure he wants help? Besides, he often works on his car and leaves it opened up.

B. Reconstructing a Syllogism

Reconstruct each of the statements below as a syllogistic argument, supplying a premise that makes that argument valid, if not sound.

Example:

- Since Mary owns a farm, she must be in favor of unrestricted immigration.

A premise that yields a valid, but possibly unsound argument, is:

- All owners of farms favor unrestricted immigration.

If not all owners of farms are in favor of unrestricted immigration, then Mary might be one of those who doesn't. To get the conclusion that she is in favor of unrestricted immigration, we must assume that **all** owners favor unrestricted immigration. But whether this is true is a matter of fact to be determined by research. It may be false.

Problems:

1. Sam must be highly intelligent; he reads the New York Times.
2. War is inevitable, since Man is instinctually aggressive.
3. Mary must be one of those bleeding-heart liberals. She favors open immigration
4. John, like other Republicans, must admire Rush Limbaugh.
5. Sam is for welfare cuts; he must be a conservative.

Chapter Review Sheet

1. Describe the chapter briefly in your own words.

2. What are the core ideas developed in this chapter? If more than one, list them in order of their importance to you.

3. Briefly explain the importance to you of your first choice.

4. Briefly describe a scenario in which you could apply one of the ideas from the chapter to improve your professional practice.

5. Connect this chapter to at least one thing you already know.

6. Suggest one way to make this chapter more effective.
