



Essentials of Formal Logic with Joelle Hodge

Lesson 2: Chapter 1.2

Outline:

Chapter 1, Lesson 1.2

- What is the difference between deductive logic and inductive logic? How are they similar and how do they contrast one another?
- Deductive logic:
 - Starts with **given propositions** or **axioms**
 - Evaluated as either *valid* or *invalid*
 - Deals with certainty (given the premises)
 - You will get a true conclusion if you start with true premises and the construction of your argument is valid.
- Inductive logic:
 - Starts with observations (used as **evidence**)
 - Evaluated as either *strong* or *weak*
 - Deals with probability
 - We get arguments that are not nearly as airtight and predictable.
- Learn to take everyday speech and boil it down to its deductive syllogism (sound), and then build it back up into something eloquent while maintaining truth and validity.
- Informal logic tends to be more inductive and formal logic tends to be more deductive.
- Inductive reasoning tends to start with evidence that we can observe and compile.
 - Inductive logic often works towards generalizations that are reasonably accurate with more or less probability.
 - The argument could be weakened with fallacies (sweeping generalizations, for example).
 - Avoid fallacies to make strong arguments stronger.
- Deductive reasoning begins with a proposition, which is a statement that can be proven true or false.
 - Axioms are generally held, widely accepted principles, often called axioms or postulates.
 - Example axiom: “Most people stop at a stop sign before proceeding through that intersection.”



- Deductive reasoning focuses on things that are either “black” or “white,” which is why deductive arguments are evaluated in the more certain terms of “valid” or “invalid”.
 - All deductive arguments start with terms that are strung together into propositions, and the propositions are stacked into a syllogism which turns into an argument.
- We don’t want to exclude inductive or deductive reasoning.
- Since we can analyze inductive reasoning, just as we can deductive reasoning, there are approaches to induction that could be classified as “formal logic.” After all, inductive arguments can be analyzed in ways that focus only on the form or structure of the argument and in ways that don’t involve back-and-forth, interpersonal dimension of debate between people.