

LOGIC & REASONING



LOGIC

The study of the principles of reasoning, especially of the structure of propositions as distinguished from their content and of method and validity in deductive reasoning.

REASONING

The logical definition is the act of using reason (thinking) to derive a conclusion from certain premises using a given methodology. The two most commonly used explicit methods to reach a conclusion are deductive reasoning (Aristotilian) and inductive reasoning (empirical). There are also theological and Oriental reasoning.

ARISTOTELIAN REASONING

SYLLOGISMS

- CATEGORICAL
- DISJUNCTIVE
- HYPOTHETICAL (CONDITIONAL)

CATEGORICAL SYLLOGISM

deductive logic

MAJOR PREMISE: All men are mortal.

MINOR PREMISE: Socrates is a man.

CONCLUSION: Socrates is mortal.

All men are mortal.

Willie is mortal.

∴ Willie is a man.

All men are mortal.

Willie is a man.

∴ Willie is mortal.

TRUTH \neq VALIDITY

Validity deals with structure.

Truth deals with content.

ENTHYMEME

A syllogism (usually categorical) with either the major premise or the minor premise being implied but not explicitly stated.

ENTHYMEMES

Linda wants to graduate from OPSU.

Linda must take COMM 1113.

All OPSU graduates must take COMM 1113.

Linda must take COMM 1113.

DISJUNCTIVE SYLLOGISM

Either overproduction or underconsumption was responsible for the postwar depression.

Overproduction was not responsible for the postwar depression

Therefore, underconsumption was responsible for the postwar depression.

HYPOTHETICAL SYLLOGISM

If world peace is to be achieved, then the United Nations must be supported.

World peace must be achieved.

Therefore, the United Nations must be supported.

EMPIRICAL REASONING (WESTERN)

Is based in inductive logic in which you reason from the specific to the general. This is the basis of the scientific method.

The Scientific Method

1. Observe and/or describe phenomenon.
2. Review literature.
3. Formulate hypothesis.
4. Gather data.
5. Analyze data.
6. Draw conclusions.

THEOLOGICAL REASONING

Will be based in some extant written work:

- The Bible
- The Koran (**Qur'ān**)
- The Torah (first 6 books of The Bible) & the Talmud (a compendium of rabbinical discussions)
- Book of Mormon

THEOLOGICAL REASONING

Makes use of the *juridical model*.

The action is right or wrong depending on whether it conforms to or is contrary to a rule, a law, and the outcome of a moral argument.

ORIENTAL REASONING

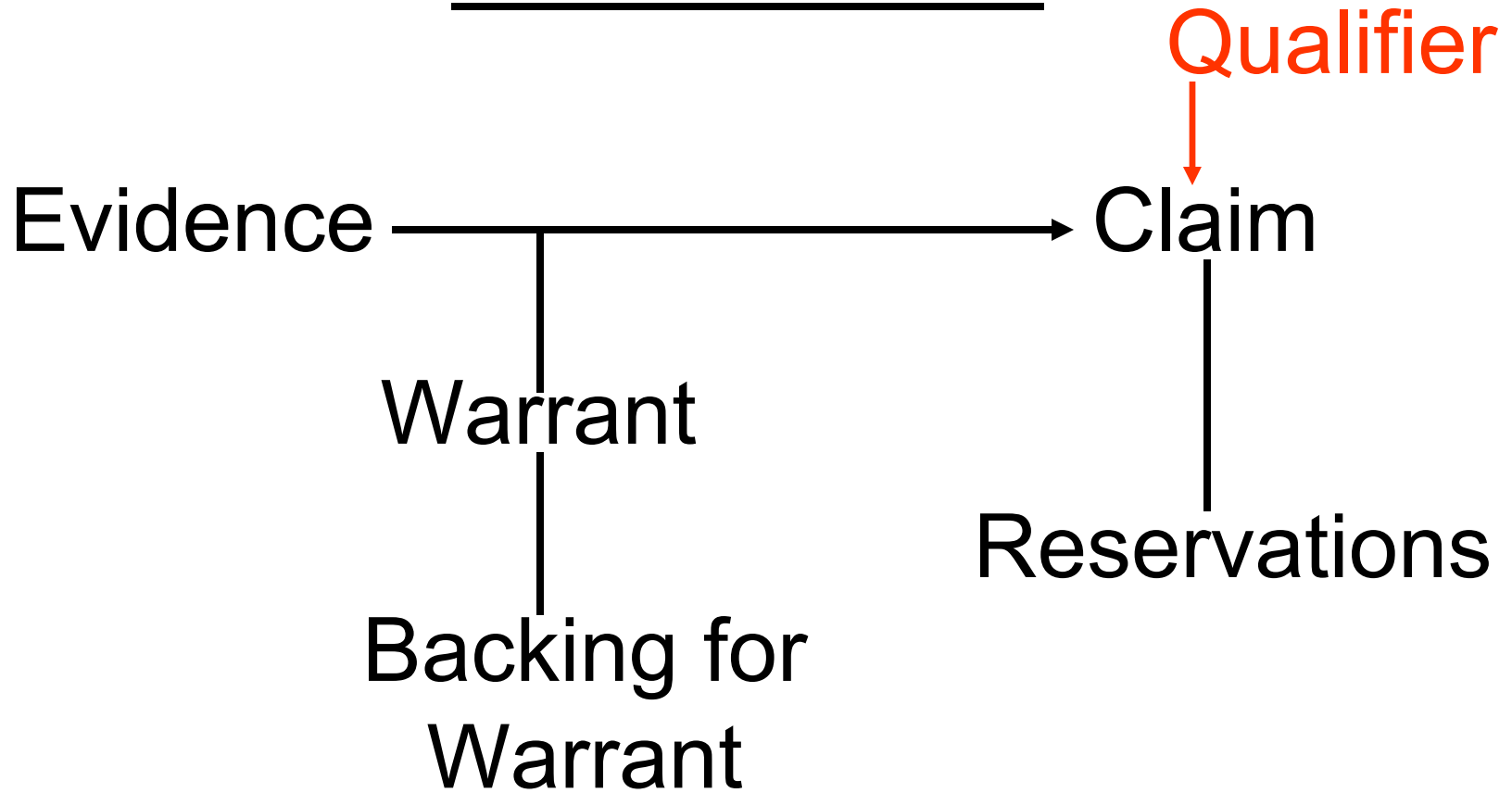
A philosophy of fatalism.

Something happens because “it was meant to be.”

**YOU CAN'T ARGUE
ACROSS METHODS
OF REASONING and
win someone over**

**You can only argue
within a method.**

TOULMIN MODELS OF REASONING



REASONING BY GENERALIZATION

Bill Jones, Jack Smith, and Sam Brown are college students who are registered to vote.



A large percentage of college students will **probably** register to vote.

These students are typical of most college students.

- **These students are neither more nor less responsible than other students.**
- **These students are neither more nor less irresponsible than other students**

UNLESS

- **This is not a representative sample.**
- **This is an insufficient number of examples**
- **There are too many negative examples that cannot be accounted for.**

REASONING BY ANALOGY

The construction of interstate highways in State A reduced the number of fatalities from auto accidents.



The construction of interstate highways in State B will **probably** reduce the number of fatalities from auto accidents.

State A is similar to State B in essential respects

- The states are similar in topography.
- The states are similar in climate
- The states are similar in # of highway patrol officers
- The states are similar in driving laws.

UNLESS

- The states are not alike in all essential respects.
- The differences between the states are not accounted for.

REASONING BY CAUSAL RELATION

Citizen A was drunk when he had an accident in his auto.

Citizen A's accident was **presumably** caused by his drunkenness.

Those who drink and drive are prone to have accidents.

- A number of examples have been collected in which drunk driving caused accidents.
- Experts have stated that this relationship exists.

UNLESS

- The fact that two events are related in time has been misinterpreted as a causal relationship.
- An immediate cause has been misinterpreted as a sufficient cause.
- Other factors have intervened to prevent a normal effect from occurring.
- Other causes contributed.

REASONING BY SIGN

