Week 3: Mozi and Logic
Section 6: Inductive Logic and Scientific Method

- Caveat: Western ethics includes a rich set of alternatives to and critiques of the law metaphor,
- We are simply looking at its role as a central focus that distinguishes Western from Chinese philosophy where the counterpart focus is on *dàos*—physically structured paths of possible behaviors.
- The preoccupation with deductive logic makes *law* crucial in explaining correct reasoning
- We seem to need self-evident laws for the 'highest premise' position to reason to any conclusion. If we derive laws in deductive valid form, we would need other laws of greater generality to serve as the premises. So reasoning seems to demand that some highest level laws be self-evident to reason.
- The model for this line of reasoning is found in Euclid's geometry - all the truths about space are derived logically from a set of self-evident axioms—this becomes the model of *reasoning* for the Rationalists.
- The Christian theological absorption of Greek thought pictured God as the ultimate reasoner. He constructs the world on the basis of truths self-evident to divine reason.
- Contrast with Mozi - 天 *tian*[nature:sky], although personified or understood via psychological mechanisms like desiring and dislike, is not presented as a reasoning being nor as building the universe according to self-evident laws
- In the West, to talk about words, names and meanings, we use definitions which allow us to use meanings as premises, propositions, in logical argument forms

- This definition is like a law for determining the reference of the word
- To know the meaning of a word is to know the rule/law linking that word to the world; all speakers *implicitly* understand these rules.
- In classical Chinese teachings, words play the role of signposts marking a social *dào.*
- In other words, in China the meaning of a word or term is linked with traditions/norms/paths of use, whereas in the West we present meanings in the form of semantic laws of application or reference.
- Modern science relies on a rigorous form of inductive logic (going from experiments to laws).
- A valid *inductive* argument does *not guarantee* the truth of its conclusion; it makes the conclusion more probable.
- In a deductive argument, the truth of a conclusion is guaranteed as a matter of form.
- Problem: classical induction is a slow and flawed way of finding out general truths.
- Modern science uses deductive argument in an inductive process called “inference to the best explanation.” Scientists look for and test hypotheses in law-like form to explain via deductive reasoning all the observable data.
- In scientific reasoning, to test laws we try to confirm or disprove them.
- We use deductive reasoning, from laws, precision measurement and careful mathematics, to derive a prediction.

- We carry out experiments testing whether or not the prediction is true. If it is, we say the experiment confirms the laws used in the prediction and if not, that it disconfirms or disproves them (because if the conclusion is false, one of the premises must be false)