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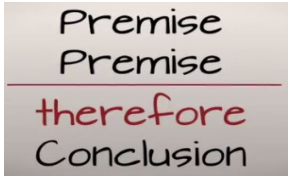
3.4 Introduction to logic

An important difference between Western philosophy and classical Chinese philosophy is that while we can find metaphysics, epistemology, and ethics in Chinese philosophy, we will not find **logic**. This difference is very important in understanding the two traditions' philosophical development. In the next few segments we will focus on logic, as this will both help us understand the nature of the **Moral Reform Impasse** (of 3.3), and also help us see how the Western concept of **argument** informs its ethical metaphor of **law**.

Logic is about **argument**. But "argument" may refer to one of two things:

argument in the sense of a **proof**



argument in the sense of a **dispute** with others

These two senses of argument are related: we often offers **arguments (proofs)** when trying to win an **argument (dispute)**. In this course we'll use *argument* almost always in the sense of **proof**.

(The Chinese word 辯 **biàn**, which Mozi uses, is ambiguous in a somewhat similar way. To 辯 **biàn** may mean *to dispute with others* or it may mean *to make a distinction*. Note, however, that this second sense of 辯 **biàn** is *not* the same as the Western notion of a logical proof.)

Logic can be understood as a **normative theory of inference**: logic classifies arguments as **good** or **bad**. In this lecture we will focus on *deductive* arguments only; *inductive* arguments will be addressed in lecture 3.6.

deductive arguments

A deductive argument is an argument (a set of sentences consisting of premises and a conclusion) that aims to guarantee the truth of its conclusion from its premises.

good deductive arguments

Two essential qualities of a good deductive argument:

- **is valid**
- **has true premises**

bad deductive arguments

A bad deductive argument simply lacks one or the other (or both) of the virtues that a good deductive argument has.

Here are two examples of valid arguments:

General form	**Example 1**	**Example 2**
All A are B.	All dogs are mammals.	All dogs are mammals.
All B are C.	All mammals are warm-blooded.	All mammals can fly.
Therefore,	Therefore,	Therefore,
All A are C.	All dogs are warm-blooded.	All dogs can fly.

- An argument is **valid** if the truth of the premises *guarantees* the truth of the conclusion. Note that a valid argument may have a false premise (as in Example 2). What makes an argument valid is the fact that *if* all the premises had been true, then the conclusion would also have been true. (As in Example 2: *If* it *were* true that all mammals can fly, then it *would* be true that all dogs can fly.)

- When an argument is both valid *and* has true premises, then we call that argument **sound**. Ideally, we want our arguments to be sound. Why? Because **all sound arguments have true conclusions**. Take a look at Example 1. It is sound (is valid *and* has true premises) so it's guaranteed to have a true conclusion.

What leads to the Moral Reform Impasse is the following:: An argument that is **valid** but has a **false conclusion** will have **at least one false premise**. Now look at the Moral Reform Impasse. The Confucian sees Mozi's use of his standard lead to a false moral conclusion. The Mohist sees the conclusion follows from 天's standard so *must* be true. While the Confucian reasons *from* its being a false conclusion *to* the falsity of Mozi's *natural* standard. Logic allows both choices.