

**Philosophy 100: Introduction to Philosophy, Fall 2006
Logic Handout**

1. Definitions

An *argument* is a series of statements intended to establish another statement.

The *conclusion* of an argument is the statement it is intended to establish.

The *premises* of an argument are the statements that are intended to establish its conclusion.

2. Two Example Arguments

(1) If Bob Dylan's new album is good, then everyone will buy it.

(2) Bob Dylan's new album is good.

(3) Therefore, everyone will buy it.

(1) Everyone in Northampton has snow tires on his car.

(2) Therefore, everyone in Mexico has snow tires on his car.

3. Valid and Sound Arguments

An argument is *valid* =df. it is logically impossible for its premises to be true and its conclusion false.

An argument is *sound* =df. (a) it is valid, and (b) all of its premises are true.

4. Common Valid Argument Forms

- Modus Ponens (MP):
 - (1) P.
 - (2) If P then Q.
 - (3) Therefore, Q.

- Multiple Modus Ponens (MMP):
 - (1) P.
 - (2) If P then Q.
 - (3) If Q then R.
 - (4) Therefore, R.

- Modus Tollens (MT):
 - (1) If P then Q.
 - (2) not-Q.
 - (3) Therefore, not-P.

5. Examples of Valid Arguments

- (1) If roses are red, then violets are blue.
- (2) Roses are red.
- (3) Therefore, violets are blue. (MP)

- (1) If Ian Thorpe is the greatest swimmer in the world, he will win the 200m free at the commonwealth games.
- (2) Ian Thorpe will not win the 200m free at the commonwealth games.
- (3) Therefore, Ian Thrope is not the greatest swimmer in the world. (MT)

6. Examples of Invalid Arguments

- (1) J. S. Bach wrote *The Goldberg Variations*.
- (2) Mozart wrote *The Magic Flute*.
- (3) Therefore, Joey Ramone wrote "I Wanna be Sedated."

- (1) If Sue is a bachelor, then Sue is not married.
- (2) Sue is not a bachelor.
- (3) Therefore, Sue is married. (denying the antecedent)

- (1) If Sue is a bachelor, then Sue is not married.
- (2) Sue is not married.
- (3) Therefore, Sue is a bachelor. (affirming the consequent)

- (1) Bartlett Hall is in Amherst.
- (2) Therefore, Bartlett Hall is not in Northampton.

7. (Good arguments that are not Sound)