

Arguments



A Bit of Logic

Source of some examples: S. Morris Engel, *With Good Reason*

I. What is an argument?

- ▶ **Not a quarrel or dispute or disagreement.**
- ▶ **An argument consists of one or more statements set out as support for some other statement.**
- ▶ **An argument's premises are the statements that are set out as support for the other statement.**
- ▶ **The argument's conclusion is the statement the premises are set out to support.**

Examples of Arguments

All human beings are mortal.

Socrates is a human being.

Therefore, Socrates is mortal.

Jones does not attend church, for he is an atheist and atheists do not attend church.

More Examples (?)

Because only those who can quote large chunks of that material can pass a test on it, it is useless for me to try, for I know hardly any of it by heart.

The sincerest satisfaction in life comes in doing and not in dodging duty; in meeting and solving problems, in facing facts, in being a dependable person.

The problem with gun-control laws is that they only work on already law-abiding citizens. Although I don't own guns, I respect those who do. And I venerate the armed woman as a transcendent symbol of independent female power -- from ancient goddesses like the Venus Armata or the knife-wielding Hindu Kali to the pistol-packing babes of "Charlie's Angels."

II. Deductive vs. Inductive Arguments

- ▶ Deductive arguments are arguments in which the conclusion is presented as following from the premises with necessity.**
- ▶ Inductive arguments are arguments in which the conclusion is presented as following from the premises with a high degree of probability.**

Examples

A deductive argument:

All the pears in that basket are ripe.

All these pears are from that basket.

All these pears are therefore ripe.

An inductive argument:

All these pears are from that basket.

All these pears are ripe.

All the pears in that basket are, therefore, (probably) ripe.

III. Logical Validity and Soundness in Deductive Arguments

In evaluating a deductive argument, we need to consider two things. Are its premises true? If they are true does its conclusion really follow from them with necessity? Philosophers classify arguments based on the answers to these questions.

Deductive Validity

A deductive argument is valid just in case the truth of its premises would absolutely guarantee the truth of its conclusion. In other words, it is valid just in case there is no possible way the premises could all be true but the conclusion false.

Deductive Soundness

A deductive argument is sound just in case it is valid and its premises are true.

So no argument is sound unless it is valid.

Evaluating Arguments for Validity and Soundness

**All human beings are mortal.
George Bush is a human being.
Therefore, George Bush is mortal.**

**All cats are animals.
All pigs are animals.
Therefore, all cats are pigs.**

More Arguments

No one who teaches in the philosophy department at Maryland owns a cell phone.

Sam Kerstein teaches in the philosophy department at Maryland.

Therefore, he does not own a cell phone.

Everyone likes Philosophy 140.

All Philosophy 140 exams are easy

Therefore, everyone will receive a high grade in Philosophy 140.

Yet Another Argument

All cats are animals.

All tigers are animals.

Therefore all tigers are cats.



IV. Common Fallacies

Equivocation

The meaning of a key word shifts in the course of an argument.

Only man is rational.

No woman is a man.

Therefore no woman is rational.

Another Example of Equivocation

In our democracy all men are equal. The Declaration of Independence states this clearly and unequivocally. But we tend to forget this great truth. Our society accepts the principle of competition. And competition implies that some men are better than others. But this implication is false. The private is just as good as the general; the file clerk is just as good as the corporate executive. We are all equal.

Circularity

We commit this fallacy when we affirm that A is the case because of B, but B turns out to be true only if A is true.

God exists! (A)

How do you know?

The Bible says so.

How do I know that what the Bible says is true?

Because the Bible is the word of God! (B)

Necessary and Sufficient Conditions

Sufficient Condition

If A is a sufficient condition for B , then given that A is true, B is true as well.

It is a sufficient condition for your being alive that you are golfing. If you are golfing, then it follows that you are alive.

Necessary Condition

If A is a necessary condition for B , then B cannot be true unless A is true.

Being alive is a necessary condition for golfing. If you are dead, you cannot golf.

(But being alive is not a sufficient condition for golfing. It does not follow from your being alive that you are golfing.)