

ARGUMENT BASICS HANDOUT

ARGUMENT: A series of statements, some of which (the premises) *supposedly* provide support for one of the others (the conclusion).

DEDUCTIVE STANDARDS

Valid Argument = It is impossible for the premises to be true while the conclusion is false.
Alternatively, if all the premises are true then the conclusion *must* also be true.

Sound Argument = An argument that is valid, and *in fact* has true premises.

THE IMAGINATION TEST FOR VALIDITY

Step 1: Identify all of the arguments premises and its conclusion.

Step 2: Imagine that all of the premises are true (even if you know that some are false).

Step 3: Ask yourself: *supposing that all of the premises were true*, could the conclusion still be false?

- a) If the answer is *yes*, then the argument is invalid.
- b) If the answer is *no*, then the argument is valid.

A FEW COMMON VALID ARGUMENT FORMS

Modus Ponens

If A, then B.

A.

Therefore, B.

Modus Tollens

If A, then B

Not B.

Therefore, Not A.

Hypothetical Syllogism

If A, then B.

If B, then C.

Therefore, if A then C.

Disjunctive Syllogism

Either A or B.

Not A.

Therefore, B.

Invalid argument = It is *possible* for all the premises to be true while the conclusion is false.

A FEW COMMON INVALID ARGUMENT FORMS

Affirming the Consequent

If A, then B.

B.

Therefore, A.

Denying the Antecedent

If A, then B

Not A.

Therefore, Not B.

USING THE STORY COUNTER-EXAMPLE METHOD TO SHOW INVALIDITY

Step 1: Identify the premises and conclusion, and rewrite the argument in numbered form.

Step 2: Tell a consistent story such that:

- a) *According to your story*, the argument's premises are *all* true.
- b) *According to your story*, the argument's conclusion is false.

NOTE 1: Soundness is a great feature of an argument... A sound argument is by definition valid. This means that a sound argument is such that *if* all the premises are true *then* the conclusion must also be true. Moreover, a sound argument has all true premises by definition. Thus, a sound argument will always have a true conclusion! Notice I am using a *modus ponens* argument to support this conclusion. Consider some random argument A. The only thing we know about A is that it is sound. We can thereby prove that argument A's conclusion must be true by using the following deductive argument...

1. If argument A has all true premises, then A's conclusion must also be true (by the definitions of soundness and validity).
2. Argument A has all true premises (by the definition of soundness).
3. Therefore, A's conclusion must also be true.

NOTE 2: Despite the desirability of soundness, an argument can be sound and still bad in other ways. A sound argument could still fail to convince other people, it could have true premises that we do not *know* are true, etc. Begging the question is one especially worrisome problem that could arise even for a sound argument.

Begging the Question = An argument begs the question when its premises too obviously presuppose the truth of its conclusion; one would *already* have to rationally believe the conclusion in order to rationally believe one or more of the premises.

The following two arguments are blatantly obvious examples of this problem.

- | | |
|---------------------------|-----------------------------------|
| 1. There is a God. | 1. There is not a God. |
| 2. Therefore, God exists. | 2. Therefore, God does not exist. |

Each of these arguments is deductively valid. It is *impossible* that all of the premises are true while the conclusion is false. Moreover, either there is a God or there is not a God and so one of these arguments has all true premises (in this case there is only the one premise). Thus, *one* of these arguments is sound. Nevertheless, everyone of us can recognize that both of these arguments are terrible in some sense. They are both terrible in that both arguments beg the question. The premises are essentially just a slightly different way of saying the same thing as the conclusion. So, you could only be justified in believing the premise of either argument if you were already rational in believing the conclusion.

Here is an example that is not quite as blatant but is still seems to involve begging the question.

1. Everything the bible says is true.
2. The bible says that there is a God.
3. Therefore, God exists.

This argument is deductively valid. Is it sound? Maybe, maybe not. Either way it begs the question and so cannot be used as a means to justify its conclusion. It seems as if one would need to know that God exists *before* one could know whether what the bible says is true. Notice that this is not to say that belief in God is irrational (maybe it is, maybe it is not) but only that one couldn't use *this particular argument* to arrive at a rational belief in God.

INDUCTIVE (NON-DEDUCTIVE) STANDARDS:

Strong Argument Form: If the premises were all true, these premises would make it probable that the conclusion is also true.

Cogent Argument: An argument that is strong, and *in fact* has true premises.

A FEW COMMON INDUCTIVE ARGUMENT FORMS

Enumerative Induction

A₁ has feature F

A₂ has feature F.

...

Therefore, (probably) all A's are F

Argument from Analogy

A and B are similar to one another.

B has feature F.

Therefore, (probably) A has F.

Inference to the Best Explanation (Abduction)

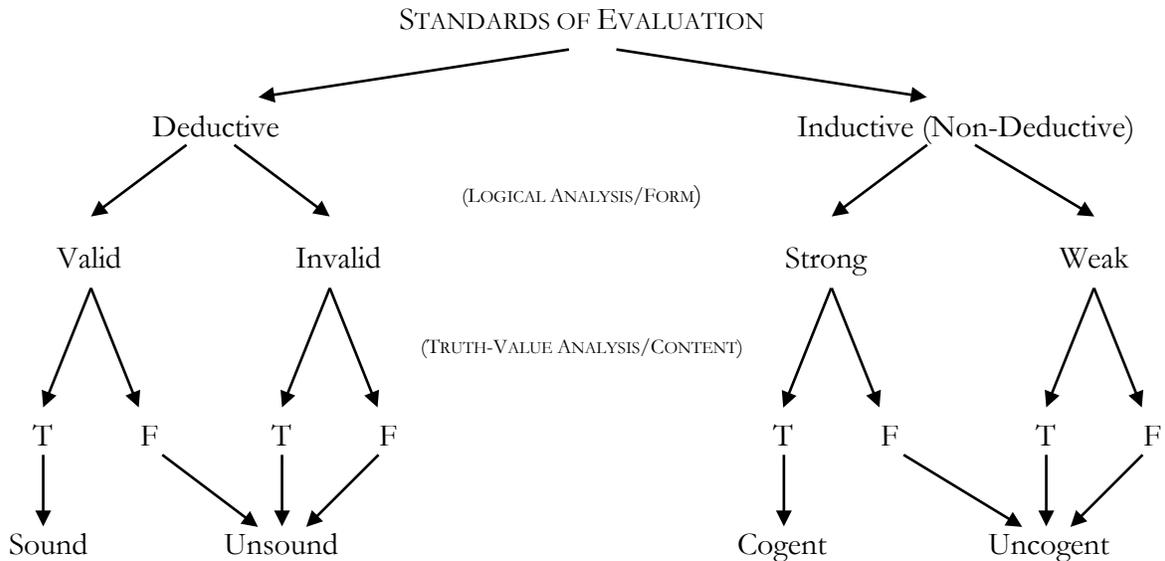
The surprising fact A has occurred

Hypothesis H is the best explanation for A

Therefore, (probably) H is true.

NOTE: Categorizing inductive arguments into strong and weak arguments is a bit more difficult than categorizing deductive arguments into valid and invalid. There are a few reasons for this. First, many of the most common kinds of inductive arguments are sometimes strong but sometimes weak. The strength of enumerative induction depends on a number of factors including the sample size, whether the sample is representative, and various other factors. The strength of an argument from analogy depends on the degree of similarity between the things compared, the relevance of this similarity to the feature inferred in the conclusion, and a variety of other factors. Second, strength comes in degrees unlike validity.

OVERALL SUMMARY OF OUR MATERIAL ON EVALUATING ARGUMENT



IMPORTANT THINGS TO REMEMBER:

- An argument can have a true conclusion and still be a bad argument.
- An argument can be valid (i.e. pass the logical analysis) and still be a bad argument in other ways.
- An argument can be valid, have a true conclusion, and still be a bad argument.
- An argument can even be sound and still be a bad argument (perhaps by begging the question).
- Just because you believe that an argument has a true conclusion does not mean you have to accept or defend that particular argument!

STEPS FOR EVALUATING AN ARGUMENT:

1. Identify the premises and conclusion of the argument.
2. Decide what standards are appropriate.
3. Perform a logical analysis: Is it valid or invalid? Is it strong or weak?
4. Perform a truth-value analysis: What reasons are there to believe the premises are true?
5. Look for other informal problems such as equivocation and begging the question.