# Validity and Soundness

A deductive argument proves its conclusion ONLY if the deductive argument is BOTH **Valid** and **Sound**.

## VALID ARGUMENTS

**Validity:** An argument is valid when, IF all of its premises are true, then the conclusion also MUST to be true.

In other words, a "valid" argument is one where the conclusion *necessarily* follows from the premises. It is IMPOSSIBLE for the conclusion to be false if the premises are true.

Here's an example of a valid argument:

Premise 1:    All philosophy courses are super exciting.
Premise 2:    All logic courses are philosophy courses.
Conclusion:   Therefore, all logic courses are super exciting.

*In this example, IF Premise 1 and Premise 2 are both TRUE then the Conclusion also MUST be TRUE.  This is the reason why this is a valid argument.*

*However, it is important to remember that validity says nothing about whether or not any of the premises ARE actually true.  In other words, validity is more about the FORM of an argument, rather than the TRUTH of an argument.*  In summary, an argument is valid if it has the proper form.

However, an argument can have the right form, but still be totally false.  Consider the following example:

1. Daffy Duck is a duck.
2. All ducks are mammals.
3. Therefore, Daffy Duck is a mammal.

This argument is valid.  If both premises are true, then the conclusion must also be true.  However, notice that premise 2 is false because ducks are NOT mammals.  In addition, the conclusion of this argument is also false. However, IF both the premises of this argument WERE true, then the conclusion would also have to be true. This is all that is required for validity. A valid argument need not have true premises or a true conclusion.

# SOUND ARGUMENTS

A **sound** argument is a valid argument that has TRUE premises and a TRUE conclusion:

> <u>**Soundness:**</u> An argument is sound if it meets these two criteria:
> (1) It is valid.
> (2) Its premises are true.

In other words, a sound argument has the right *form* AND it is *true.  A sound argument will always have a true conclusion. This follows every time these two criteria for soundness are met.*

Do you see why this is the case? First, recall that a sound argument is both valid AND has true premises. Now, refer back to the definition of "valid." For all valid arguments, if their premises are true, then the conclusion MUST also be true. So, all sound arguments have true conclusions.

Looking back to our argument about Daffy Duck, we can see that it is **valid**, but not **sound**. It is not sound because it does not have all true premises. Namely, "All ducks are mammals" is not true.

So, the argument about Daffy Duck is valid, but NOT sound. Here's an example of an argument that is valid AND sound:

1.  All rabbits are mammals.
2.  Bugs Bunny is a rabbit.
3.  Therefore, Bugs Bunny is a mammal.

In this argument, if the premises are true, then the conclusion is necessarily true (so it is valid). AND, as it turns out, both premises ARE true (all rabbits ARE in fact mammals, and Bugs Bunny IS in fact a rabbit)—so the conclusion must also be true (so the argument is sound).