

Evaluating an Argument

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WHAT'S COVERED

In this tutorial we will begin with a review of the structure of arguments, before we consider further criteria for evaluating deductive and inductive arguments. Our discussion will break down like this:

1. [Review of the Structure of Arguments](#)
2. [Sound and Unsound Deductive Arguments](#)
3. [Cogent and Uncogent Inductive Arguments](#)
4. [Evaluating Arguments](#)

1. Review of the Structure of Arguments

To begin with, recall that deductive and inductive arguments support their conclusions in different ways. A successful deductive argument makes the conclusion necessarily true; this is called a valid argument. If a deductive argument fails to provide this kind of inference, which is called an invalid argument.

A successful inductive argument only makes the conclusion probably true; in this case, it is a strong argument. If an inductive argument fails to provide this kind of inference, it is a weak argument.

Whether you are dealing with a deductive or an inductive argument, it is not enough for them to be either valid or strong. For a deductive argument to guarantee a true conclusion, it needs to be both valid and have true premises. For an inductive argument to give a probable conclusion, it needs to be both strong and have true premises.

2. Sound and Unsound Deductive Arguments

If a deductive argument is valid and has true premises, it is a **sound** argument. If a deductive argument doesn't meet this standard, then it is an **unsound** argument.

It should be noted that an invalid deductive argument can never be sound. This is because true premises are not enough for soundness; a deductive argument needs to both have true premises and be valid in order to be sound.

➔ **EXAMPLE** Consider the following deductive arguments and take note of their validity, soundness, and whether or not they have true premises.

Argument	Valid?	True Premises?	Sound?
A scientist wears glasses. Hannah is a scientist. Therefore, Hannah wears glasses.	Yes	No	No
Wood comes from trees. My table is made of wood. Therefore, my table comes from trees.	Yes	Yes	Yes
Ducks are birds. Chickens are birds. Therefore, ducks are chickens.	No	Yes	No

The first and second arguments are straightforward. The third shows that an argument with true premises can still be unsound if it is also invalid. We know that it is invalid because it is inconceivable for a valid argument to give a false conclusion with true premises.



TERMS TO KNOW

Sound

A deductively valid argument with all true premises.

Unsound

A deductive argument that is not sound.

3. Cogent and Uncogent Inductive Arguments

If an inductive argument is strong and has true premises, it is a **cogent** argument. If an inductive argument doesn't meet this standard, it is an **uncogent** argument.

Similar to what was said of deductive arguments, a weak inductive argument can never be cogent. This is because true premises are not enough for cogency; an inductive argument needs to have both true premises and be strong in order to be cogent.

➔ **EXAMPLE** Consider the following inductive arguments and take note of their strength, cogency, and whether or not they have true premises.

Argument	Strong?	True Premises?	Cogent?
Every world leader is a female. Elections are soon. A woman will likely win.	Yes	No	No
Every newspaper I've read had the correct date. The next one will likely have the correct date.	Yes	Yes	Yes
Blogs and the Times report the news. The Times gives reliable information. Blogs likely do also.	No	Yes	No

TERMS TO KNOW

Cogent

An inductively strong argument with all true premises.

Uncogent

An inductive argument that is not cogent.

4. Evaluating Arguments

Whenever you want to evaluate an argument you first need to decide whether it is deductive or inductive. If its deductive, then you need to find out if it is valid or invalid and whether it is sound or unsound. If it's inductive, you need to find out if it's strong or weak and whether it's cogent or uncogent.

TRY IT

Consider these arguments and think about how to classify them.

1

All frogs are amphibious.
All amphibious animals
live on land and in water.
Therefore, frogs can live
on land and in water.

2

Every lemon I've eaten
is sour. The next lemon
I eat will probably be
sour also.

3

Most artists have messy
hair. Omar is an artist.
Therefore, Omar
probably has messy hair.

4

If you party, you will fail
school. If you have no
friends, you will be
unhappy. Therefore, if you
party, you will be unhappy.

Here's how these arguments are classified:

- Number 1 is a valid and sound deductive argument. This is because its premises are true and the conclusion follows necessarily from the premises.
- Number 2 is a strong and cogent inductive argument. This is because its premises are true and they make the conclusion probable.
- Number 3 is a strong but uncogent inductive argument. It is strong because, if the premises were true, then the conclusion would be probable. It is uncogent, however, because the first premise is false.
- Number 4 is an invalid and unsound deductive argument. This is because the conclusion does not follow necessarily from the premises and the premises themselves are false.

SUMMARY

We started this tutorial with a **review of the structure of arguments**, covering validity and invalidity in deductive arguments and strength and weakness in inductive arguments. Then we looked at the difference between **sound and unsound deductive arguments**, paying attention to the fact that true premises alone are not enough for soundness.

Then the difference between **cogent and uncogent inductive arguments** was presented, focusing on the fact that both true premises and strong inference is needed for an inductive argument to be cogent. Finally, we used more examples to show the importance of correctly classifying when **evaluating arguments**.

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TERMS TO KNOW

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Sound

A deductively valid argument with all true premises.

Uncogent

An inductive argument that is not cogent.

Unsound

A deductive argument that is not sound.