

CONSTRUCTING A LOGICAL ARGUMENT

What is an argument?

An argument is an effort to justify a particular conclusion. The justification should be strong enough to persuade others that your conclusion is the correct one.

What is an argument composed of?

Every argument consists of premises and a conclusion. The premises are particular statements that provide the reasons or evidence supporting your conclusion. The conclusion is, of course, the position that you are arguing for.

Types of Argument

| Type | Definition | Example | What makes it strong? |
|-----------|--|--|--|
| Deduction | This form of argument is based on the rules of logic, so if the premises are true, then the conclusion must also be true. | If you smoke, you might get lung cancer. You smoke. Therefore, you might get lung cancer. | Deduction is always strong because it is based on logical connections between premises and conclusion. It is important, however, to establish the truth of the premises. |
| Induction | This form of argument involves reasoning from particular facts or observations to draw conclusions about general principles. | Ann smoked and she has lung cancer. Emile smoked and he has lung cancer. In fact, every smoker I know now has lung cancer. Therefore, if you smoke you will have a good chance of getting lung cancer. | The strength of inductive arguments depends on the number of observations supporting the generalization. The more observations there are, the more likely the conclusion is true. Note that every counterexample reduces the likelihood that the conclusion is true. |
| Abduction | The conclusion is considered to be the best explanation of the available facts. | Several studies establish a high correlation between smoking and lung cancer. Additional studies demonstrate that incidence of lung cancer in ex-smokers and non-smokers is much lower. Therefore, it is likely that smoking causes lung cancer. | The strength of abductive arguments depends on the degree to which the conclusion accounts for all evidence and data, including that which appears to be contradictory. |
| Analogy | The conclusion is derived from comparing the issue at hand with another, similar issue. | Breathing in a toxic substance like asbestos is known to cause lung cancer. Cigarette smoke is also toxic, so it likely causes lung cancer. | Arguments from analogy are only strong when the two issues are similar with respect to the key features that are significant to the conclusion. |

Constructing the Argument

The first step to creating an argument is to know what you are going to be arguing for. What thesis or conclusion will you defend? Often, you will need to research the differing positions on your subject before you can fully determine this.

The second step is to determine your premises, which comprise the reasons or evidence that support your conclusion.

Selecting Evidence

To support your position, you may rely on many different types of evidence including measurements, statistics, authority, reasoning, observation, and experience. It is helpful to consider the strengths and limits of the different types of evidence when choosing what to include.

Consider:

- Which pieces of evidence are available?
- What type of evidence is most appropriate for the assignment or course?
- How do the different pieces of evidence support each other?
- Which piece(s) of evidence best support(s) the conclusion?
- What is the strongest evidence? The weakest?

In general, arguments rely on premises or evidence about what is known (or less controversial) in order to draw conclusions about the unknown (or more controversial). If your premises are debatable, you may need to support them with additional evidence.

Organizing Evidence

The way that you organize your evidence determines the type of argument. For example, developing the logical connections between premises will produce a deductive argument, while relying on particular observations or measurements to infer conclusions will lead to an inductive argument. Arguments from analogy are constructed by determining the similarities between two comparable issues and showing that what is known about one is likely to be true for the other. Abductive arguments are, generally speaking, the most complex because they are created by bringing together diverse pieces of evidence in different ways to determine the most likely explanation for an issue or state of affairs.

Note:

- A few strong and well-developed arguments are stronger and more persuasive than many weaker and undeveloped ones.
- Evidence does not speak for itself. It is crucial to explain how each piece of evidence supports your conclusion and what makes it credible.
- The strongest points are most effective at the beginning and end of your argument.

Addressing Counterarguments

An argument that is entirely one-sided will not be persuasive. In order to successfully convince someone that your claim is correct, you need to be able to anticipate objections and develop responses to them. This requires awareness of the evidence and reasons that contradict your conclusion, and the ability to find the flaws in them.

Ask:

- Who might disagree with my position? Why?
- What gaps or omissions are there in my evidence (or reasoning)?
- What evidence would support an opposing position?

Important: Always treat opposing positions respectfully and fairly. This will make your own argument much stronger because it (a) forces you to attend to the very precise reasons why someone might hold another point of view, and (b) leads you to think more carefully about why you disagree.