

Different Lines of Reasoning

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WHAT'S COVERED

In this lesson, you will learn about the different types of reasoning and how they work in practice. Specifically, this lesson will cover:

- 1. Different Lines of Reasoning
 - a. Inductive Reasoning and Associative Reasoning
 - b. Deductive Reasoning
- 2. Conclusion

1. Different Lines of Reasoning

Reason is the capacity for consciously making sense of things. Reason, or reasoning, is associated with thinking, cognition, and intelligence. It is the means by which rational beings understand cause and effect, truth and falsehood, validity, and what is good or bad. The result is a reason that could then be used to explain or justify some event, phenomenon, or behavior.

As you develop arguments for your persuasive speech, you are likely to engage in two different lines of reasoning: inductive, which uses associations, and deductive.

1a. Inductive Reasoning and Associative Reasoning

Inductive reasoning, also known as induction, is a kind of reasoning that constructs general propositions that are derived from specific examples based on previous observations. One important aspect of inductive reasoning is associative reasoning: seeing or noticing similarity among the different events or objects that you observe.

☆ EXAMPLE If you throw a ball in the air and it comes back down, again and again, you observe the same event happening and are likely to conclude that when you kick a ball in the air, it will come back down.

Inductive reasoning is probabilistic; it only states that, given the premises, the conclusion is probable. Consider these simple logical statements, known as **syllogisms**.



Here is a statistical syllogism to illustrate inductive reasoning:

1. 90% of humans are right-handed.

2. Joe is a human.

3. Therefore, the probability that Joe is right-handed is 90%. If you were required to guess, you would choose "right-handed" in the absence of any other evidence.

Here is another stronger example:

100% of life forms that we know of depend on liquid water to exist. Therefore, if you discover a new life form, it will probably depend on liquid water to exist.

This argument could have been made every time a new life form was found, and would have been correct every time. While it is possible that in the future a life form that does not require water will be discovered, in the absence of other factors, the conclusion is probably correct, as it has been in the past.

Inductive reasoning is used to determine properties or relationships based on previous observations or experiences, and then to formulate general statements or laws based on limited observations of recurring phenomenal patterns. The conclusion of an inductive argument follows with some degree of probability.

Inductive reasoning involves association or analogical reasoning. In order to engage in inductive reasoning, we must observe, see similarities, and make associations between conceptual entities. The ability to structure our perceptions relies on the associative network in our brain, which allows us see the likeness and form a concept, about the similarities.

E TERMS TO KNOW

Inductive Reasoning

A kind of reasoning that constructs or evaluates general propositions that are derived from specific examples. Inductive reasoning contrasts with deductive reasoning, in which specific examples are derived from general propositions.

Syllogism

An inference in which one proposition (the conclusion) follows necessarily from two other propositions, known as the premises.

1b. Deductive Reasoning

Deductive reasoning, also called deductive logic, is the process of reasoning from one or more general statements, laws, or principles regarding what is known, in order to reach a logically certain conclusion. Deductive reasoning involves using given, true premises to reach a conclusion that is also true. If you accept or know the general principle as true, then you can apply it to the specific case to conclude that it is also true.

↔ EXAMPLE Consider the general principle of the law a gravity: *What goes up must come down*.Now, when you throw the ball in the air, you conclude that it will fall down based on your knowledge of the general law of gravity.

Deductive reasoning contrasts with inductive reasoning in that a specific conclusion is arrived at from the general principle when reasoning deductively. If the rules and logic of deduction are followed, this procedure ensures an accurate conclusion.

IN CONTEXT

Here is a classic example of a deductive argument:

- 1. All men are mortal.
- 2. John is a man.
- 3. Therefore, John is mortal.

The first premise states that all objects classified as "men" have the attribute "mortal." The second premise states that "John" is classified as a "man"— a member of the class or group of "men." The conclusion then states that "John" must be "mortal" because he inherits this attribute from his classification as a "man." If both premises are true, the terms are clear, and the rules of deductive logic are followed, then the conclusion of the argument follows by logical necessity.

TERM TO KNOW

Deductive Reasoning

The process of reasoning that uses given true premises to reach a conclusion that is also true. Deductive reasoning contrasts with inductive reasoning.

2. Conclusion

In summary, with inductive reasoning, you are making observations of specific or particular events and then drawing a general conclusion; whereas with deductive reasoning, you are starting with a general statement and applying it to particular instances when you draw your final conclusion about a particular instance, person, or object.

SUMMARY

In this lesson, you learned about two **different lines of reasoning Inductive reasoning**, also known as induction, is a kind of reasoning that constructs general propositions that are derived from specific examples. Inductive reasoning is probabilistic; it only states that, given the premises, the conclusion is probable. One important aspect of inductive reasoning is associative reasoning: seeing or noticing similarity among the different events or objects that you observe.

Deductive reasoning is the process of reasoning from one or more general statements, laws, or principles regarding what is known, in order to reach a logically certain conclusion.

Source: Boundless. "Different Lines of Reasoning." Boundless Communications Boundless, 17 Mar. 2017. Retrieved 23 May. 2017 from https://www.boundless.com/communications/textbooks/boundlesscommunications-textbook/methods-of-persuasive-speaking-15/logical-appeals-78/different-lines-ofreasoning-302-10651/

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