Induction

Definition of Induction

Induction is known as a conclusion reached through reasoning. An inductive statement is derived using facts and instances which lead to the formation of a general opinion. Though all the facts upon which the conclusion is based are true, there is still a chance of the conclusion reached being false. This type of reasoning goes from specific facts to a general statement.

An inductive statement is of two types: a strong inductive statement, or a weak inductive statement. It depends on its authenticity. A strong statement has the possibility of being false, but it is very unlikely. There is a very high probability that it is true. When it comes to weak inductive statements, they have conclusions which are very unlikely to be true, and the reasons are weak enough that the conclusion is not probable.

It is not possible to exactly measure the strength of a statement, but it is possible to measure it in degrees. For a statement to be strong, it should be more probable when compared to being improbable, and should have a strong factual ground on which it is based. There are four different categories of inductive reasoning, namely inductive generalization, statistical syllogism, simple induction, and argument from analogy.

Induction Examples

Example #1:

> "This marble from the bag is black. That marble from the bag is black. A third marble from the bag is black. Therefore all the marbles in the bag are black."

The statement above is an example of inductive reasoning. Since the first marble from the bag was black, the second was black, and the third was black, the conclusion reached is that *all* the marbles in the bag are black. Unless there were only those three marbles in the bag, this conclusion may not be true.

Example #2:

> "I counted five or six people with green eyes; therefore all of the people have green eyes."

This statement is an example of inductive generalization which uses evidence about a limited number of things to make an overall assumption of most things of that type. The authentication of this type of a statement depends on the number of things used to make the assumption and the total number of things.

Example #3:

> "Sam is a bus driver. All drivers drive at 30 mph, therefore Sam drives at 30 mph."

This statement is an example of statistical syllogism, which begins from a general statement and ends with a conclusion about an individual.

Example #4:

> "John and David are brothers. John likes to eat Pizza and Hamburgers. David likes to eat Pizza. Therefore, one assumes that David also likes to eat Hamburgers."

This statement is an example of an argument from analogy, which begins by the noting of two or more properties and drawing the conclusion that they must share some additional properties.

Example #5:

> "All the kids in the park can jump; therefore, Ilene's kid can jump also."

This statement is an example of simple induction. These types of statements begin with evidence of a group and leads to a conclusion about an individual. This statement begins with an assumption about all kids, then comes down to applying that assumption to "Ilene's kid," which is one specific child.

Example #6:

> "Around 80 percent of the girls wore heels, Jane is a girl. Therefore, Jane wore heels."

This statement is an example of a strong inductive statement.

Example #7:

> "Some actors are girls. Tom is a boy. Therefore, Tom is an actor."

This statement is an example of a weak inductive statement.

Example #8:

> "There are 15 clips in the bag; in a random draw 12 are pink. Therefore, all clips in the bag are pink."

This is a strong inductive statement, as it is logical and the probability of it being true is greater than it being false.

Function of Induction

Induction is used to predict what may happen in the future, and establish a possibility of what may happen next. Inductive statements allow you to establish probability and prepare accordingly. At the same time, they also allow you to argue a point without having to actually prove the fact. They can only prove to be right or wrong following further research and observation. Inductive statements are used in everyday life as well. In fact, we all use inductive statements in everyday life to prove our point when talking about the weather, about other people, and even general situations.