**Question: What is meant by Formal Fallacy? Discuss two types of formal fallacies.**

**Answer:** A formal fallacy is one which involves an error in the form, arrangement or technical structure of an argument. It is defined as a [deductive](https://en.wikipedia.org/wiki/Deductive) [argument](https://en.wikipedia.org/wiki/Argument) that is invalid. The argument itself could have true [premises](https://en.wikipedia.org/wiki/Premise), but still have a false [conclusion](https://en.wikipedia.org/wiki/Logical_consequence). The presence of a formal fallacy in a deductive argument does not imply anything about the argument's premises or its conclusion. Both may actually be true, but the deductive argument is still invalid because the conclusion does not follow from the premises in the manner described. Following is an example of a formal fallacy:

Premise: All tigers hunt their prey.

Premise: All lions hunt their prey.

Conclusion: All tigers are lions.

Here we see that the conclusion does not follow from the premises, although both the premises are true.

There are many types of formal fallacies, and some of these involve the consequent and the antecedent of a conditional statement. The [consequent](http://www.fallacyfiles.org/glossary.html#Consequent) of a [conditional statement](http://www.fallacyfiles.org/glossary.html#ConditionalProp) of the form ‘if…then’ is the part that usually follows "then". The part that usually follows "if" is called the "[antecedent](http://www.fallacyfiles.org/glossary.html#Antecedent)". Following are two types of such fallacies:

**a)** **Affirming the Consequent**: The fallacy of “affirming the consequent” refers to an error in formal logic where if the consequent is said to be true, the antecedent is said to be true, as a result. In committing this fallacy, one makes a conditional statement, affirms the consequent, and concludes that the antecedent is true.

**Logical Form:**

*If P then Q.*

*Q.*

*Therefore, P.*

No matter what statements are substituted for P and Q, any argument that has the above logical form **will be invalid.**

**Example 1:**

*If taxes are lowered, I will have more money to spend.*

*I have more money to spend.*

*Therefore, taxes must have been lowered.*

**Explanation:** I could have more money to spend simply because I gave up on some expensive habits. My having more money does not imply the lowering of the taxes.

**Example 2:**

***If there is no petrol in the car, the car will not run.***

***The car is not running.***

***Therefore, there is no petrol in the car.***

**Explanation:** Maybe the battery is dead; maybe the engine is out of order. Having no petrol isn’t the only possible explanation for why the car won’t start.

**b) Denying the Antecedent:** The fallacy of “denying the antecedent” refers to an error in formal logic where if the antecedent is said to be not true, then it is concluded that the consequent is not true as a result. In committing this fallacy, one makes a conditional statement, denies the antecedent, and concludes that the consequent is also not true.

**Logical Form:**

*If P, then Q.*

*Not P.*

*Therefore, not Q.*

No matter what statements are substituted for P and Q, any argument that has the above logical form **will be invalid.**

**Example 1:**

*If you work hard, you will get a good job.*

*You do not work hard.*

*Therefore, you will not get a good job.*

**Explanation:** It is not necessary that a person who does not work hard will not get a good job. He could get a good job simply through a recommendation by an influential person.

**Example 2:**

***If you kill the mosquito, it will die.***

***You do not kill the mosquito.***

***Therefore, it will not die.***

**Explanation:** The mosquito could die of other causes, even if you do not kill it. Therefore, the argument is invalid.

To conclude, formal fallacies are a matter of invalid form. They are created when the relationship between premises and conclusion does not hold up or when premises are unsound. They generally occur in deductive arguments, and can be reduced to symbolic formulae.