

Deductive Reasoning

Definition: Webster's II – b. Logic. The process or reasoning in which a conclusion follows necessarily from the stated premises: inference by reasoning from the general to the specific.

Premise(s) \longrightarrow Inference \longrightarrow Conclusion

1. If A, then B.
2. A.
3. Therefore, B

Example:

1. If Bandit is a dog, then Bandit is a mammal.
2. Bandit is a dog.
3. Therefore, Bandit is a mammal.

Or,

1. If A, then B.
2. A is not true.
3. Therefore, B is not true.

Example:

1. If that spider crawling up your arm has a red emblem on its back, then it is a black widow.
2. That spider crawling up your arm does not have a red emblem on its back.

3. Therefore the spider crawling up your arm is not a black widow.

Or,

1. A is B.
2. B is C.
3. C is A.

Example:

1. Sammy is a snake.
2. Snakes are reptiles.
3. Sammy is a snake.

Valid Deductive Arguments: The rules of the argument are valid. The issue is not the true or false nature of the premises, but whether the structure of the argument is itself valid.

Example: (the argument is valid even though the premise is false)

1. If an animal has scales, then it is a reptile.
2. Fish have scales.
3. Fish are reptiles.

Sound Deductive Arguments: When the argument is valid and the premise(s) are true.