

1 Rules of Inference

1. Argument: A sequence of statements with a conclusion
An argument is considered valid if and only if it is impossible for the premises to be true and the conclusion is false.
Use rules of inference to deduce new statements from statements we have.
2. Valid: The conclusion of the argument must follow the truth of proceeding statements/premise of the argument.
Example:

Premises: If you have a correct password, then log onto the network.
You have a correct password \rightarrow You can log onto the network.

3. Proof: Valid arguments that establish the truth of a mathematical statement.

2 Valid Arguments in Propositional Logic

TODO

3 Rules of Inference for Propositional Logic

TODO

4 Rules of Inference for Propositional Logic: Modus Ponens

TODO

5 Modus Tollens

TODO

6 Hypothetical Syllogism

TODO

7 Disjunctive Syllogism

TODO

8 Addition

TODO

9 Simplification

TODO

10 Conjunction

TODO

11 Resolution

TODO

12 Valid Arguments

TODO

13 Fallacies

TODO

14 Inference with Quantified Statements

TODO

15 Using Rules of Inference

TODO

16 Universal Modus Ponens

TODO

17 Universal Modus Tollens

TODO