

Terms

critical row A row of the truth table in which all the premises are true.

- If the conclusion in every critical row is true then the argument form is valid.

syllogism An argument form consisting of two premises and a conclusion.

- The first and second premises are called the **major premise** and **minor premise**, respectively.

modus ponens A form of syllogism meaning “method of affirming” (the conclusion is a method of affirmation).

$$\begin{array}{l} p \rightarrow q \\ p \\ \therefore q \end{array}$$

modus tollens A form of syllogism meaning “method of denying” (the conclusion is a denial).

$$\begin{array}{l} p \rightarrow q \\ \sim q \\ \therefore \sim p \end{array}$$

rule of inference A form of argument that is valid (e.g. modus ponens and modus tollens).

fallacy An error in reasoning that results in an invalid argument. Three common fallacies are:

- using ambiguous premises, and treating them as if they were unambiguous;
- assuming what is to be proved (without having derived it from the premise); and
- jumping to a conclusion (without adequate) grounds.

Two others are the *converse error* and the *inverse error*.

sound argument An argument is sound if, and only if, it is valid and all its premises are true.

- See table 2.3.1 in the textbook for rules of inference.

Test Yourself

1. For an argument to be valid means that every argument of the same form whose premises are true has a true conclusion.
2. For an argument to be invalid means that there is an argument of the same form whose premises are true and whose conclusion is false.
3. For an argument to be sound means that it is valid and its premises are true. In this case we can be sure that its conclusion is true.