

Determining the Validity of an Argument – Class Handout

Address the following arguments and logic puzzles using the True/False cards:

1. Some basic arguments. In each case we will determine whether or not the argument is valid:

<p>a. <i>Modus Ponens</i></p> $\begin{array}{l} \text{If } A, \text{ then } B \\ \hline A \\ B \end{array}$	<p>b. <i>Assuming the Consequent</i></p> $\begin{array}{l} \text{If } A, \text{ then } B \\ \hline B \\ A \end{array}$	<p>c. <i>Denying the Antecedent</i></p> $\begin{array}{l} \text{If } A, \text{ then } B \\ \hline \sim A \\ \sim B \end{array}$	<p>d. <i>Hypothetical Syllogism</i></p> $\begin{array}{l} \text{If } A, \text{ then } B \\ \text{If } B, \text{ then } C \\ \hline \text{If } A, \text{ then } C \end{array}$
<p>e. <i>Affirming a Disjunct</i></p> $\begin{array}{l} A \text{ or } B \\ \hline A \\ \sim B \end{array}$	<p>f. <i>Proof by Cases</i></p> $\begin{array}{l} A \text{ or } B \text{ or } C \\ \text{If } A, \text{ then } D \\ \text{If } B, \text{ then } D \\ \text{If } C, \text{ then } D \\ \hline D \end{array}$	<p>g. <i>Contradiction Example</i></p> $\begin{array}{l} \text{If } \sim A, \text{ then } B \\ \text{If } \sim A, \text{ then } \sim B \\ \hline A \end{array}$	<p>h. <i>Disjunctive Syllogism</i></p> $\begin{array}{l} A \text{ or } B \\ \hline \sim A \\ B \end{array}$

2. Show that we can conclude that Eddie and Carrie passed their logic course given these statements.

If Carrie failed, then Annie passed.

It is not the case that Carrie passed and Eddie failed.

If Annie passed, then Carrie and Eddie also passed.

(Let A represent Annie passed, C represent Carrie passed, E represent Eddie passed.)

3. Who is going to the beach?

If Alyssa is going to the beach, then so is Bonnie.

Alyssa and Carl are going to the beach if Erin is.

Either Bonnie or Dan is going to the beach, but not both.

Carl is going to the beach if Dan is, otherwise he isn't.

If Carl isn't going to the beach, then Erin is.