

Rules of Implication Handout

I. Truth Table for Constructive Dilemma

$(P \supset Q) \cdot (R \supset S) / P \vee R // Q \vee S$												
T	T	T	<b>T</b>	T	T	T	T	<b>T</b>	T	T	<b>T</b>	T
T	T	T	<b>F</b>	T	F	F	T	<b>T</b>	T	T	<b>T</b>	F
T	T	T	<b>T</b>	F	T	T	T	<b>T</b>	F	T	<b>T</b>	T
T	T	T	<b>T</b>	F	T	F	T	<b>T</b>	F	T	<b>T</b>	F
T	F	F	<b>F</b>	T	T	T	T	<b>T</b>	T	F	<b>T</b>	T
T	F	F	<b>F</b>	T	F	F	T	<b>T</b>	T	F	<b>F</b>	F
T	F	F	<b>F</b>	F	T	T	T	<b>T</b>	F	F	<b>T</b>	T
T	F	F	<b>F</b>	F	T	F	T	<b>T</b>	F	F	<b>F</b>	F
F	T	T	<b>T</b>	T	T	T	F	<b>T</b>	T	T	<b>T</b>	T
F	T	T	<b>F</b>	T	F	F	F	<b>T</b>	T	T	<b>T</b>	F
F	T	T	<b>T</b>	F	T	T	F	<b>F</b>	F	T	<b>T</b>	T
F	T	T	<b>T</b>	F	T	F	F	<b>F</b>	F	T	<b>T</b>	F
F	T	F	<b>T</b>	T	T	T	F	<b>T</b>	T	F	<b>T</b>	T
F	T	F	<b>F</b>	T	F	F	F	<b>T</b>	T	F	<b>F</b>	F
F	T	F	<b>T</b>	F	T	T	F	<b>F</b>	F	F	<b>T</b>	T
F	T	F	<b>T</b>	F	T	F	F	<b>F</b>	F	F	<b>F</b>	F

II. For each of the following arguments, determine which, if any, of the 8 Rules of Implication is being followed.

$$\begin{array}{l}
 1. \quad A \supset (B \cdot C) \\
 \quad \sim(B \cdot C) \\
 \quad \therefore \sim A
 \end{array}$$

$$\begin{array}{l}
 7. \quad S \vee \sim T \\
 \quad \sim \sim T \\
 \quad \therefore \sim S
 \end{array}$$

$$\begin{array}{l}
 2. \quad [(D \vee E) \supset F] \cdot [F \supset (G \equiv H)] \\
 \quad (D \vee E) \vee F \\
 \quad \therefore F \vee (G \equiv H)
 \end{array}$$

$$\begin{array}{l}
 8. \quad \sim U \equiv V \\
 \quad (\sim U \equiv V) \supset W \\
 \quad \therefore W
 \end{array}$$

$$\begin{array}{l}
 3. \quad I \supset \sim J \\
 \quad K \supset I \\
 \quad \therefore K \supset \sim J
 \end{array}$$

$$\begin{array}{l}
 9. \quad X \supset \sim Y \\
 \quad \sim Y \supset Z \\
 \quad \therefore (X \supset \sim Y) \cdot (\sim Y \supset Z)
 \end{array}$$

$$\begin{array}{l}
 4. \quad L \\
 \quad \sim M \cdot N \\
 \quad \therefore \sim(M \cdot N) \cdot L
 \end{array}$$

$$\begin{array}{l}
 10. \quad (A \vee \sim B) \vee \sim \sim C \\
 \quad \therefore A \vee \sim B
 \end{array}$$

$$\begin{array}{l}
 5. \quad O \\
 \quad \therefore O \cdot \sim O
 \end{array}$$

$$\begin{array}{l}
 11. \quad \sim[D \supset (E \vee F)] \\
 \quad [D \supset (E \vee F)] \vee [G \supset (E \cdot \sim F)] \\
 \quad \therefore [G \supset (E \cdot \sim F)]
 \end{array}$$

$$\begin{array}{l}
 6. \quad P \\
 \quad \therefore P \vee [Q \equiv (R \cdot \sim P)]
 \end{array}$$

$$\begin{array}{l}
 12. \quad [(G \vee H) \cdot I] \cdot (\sim I \equiv K) \\
 \quad \therefore (G \vee H) \cdot I
 \end{array}$$