

Philosophy 109, Introduction to Modern Logic, Queens College
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Rules of Implication Handout

I. Truth Table for Constructive Dilemma

(P	⊃	Q)	•	(R	⊃	S)	/	P	∨	R	//	Q	∨	S
T	T	T	T	T	T	T		T	T	T		T	T	T
T	T	T	F	T	F	F		T	T	T		T	T	F
T	T	T	T	F	T	T		T	T	F		T	T	T
T	T	T	T	F	T	F		T	T	F		T	T	F
T	F	F	F	T	T	T		T	T	T		F	T	T
T	F	F	F	T	F	F		T	T	T		F	F	F
T	F	F	F	F	T	T		T	T	F		F	T	T
T	F	F	F	F	T	F		T	T	F		F	F	F
F	T	T	T	T	T	T		F	T	T		T	T	T
F	T	T	F	T	F	F		F	T	T		T	T	F
F	T	T	T	F	T	T		F	F	F		T	T	T
F	T	T	T	F	T	F		F	F	F		T	T	F
F	T	F	T	T	T	T		F	T	T		F	T	T
F	T	F	F	T	F	F		F	T	T		F	F	F
F	T	F	T	F	T	T		F	F	F		F	T	T
F	T	F	T	F	T	F		F	F	F		F	F	F

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

- | | | |
|---|--|--|
| 1. $A \supset (B \cdot C)$
$\sim(B \cdot C)$
$\therefore \sim A$ | 4. L
$\sim M \cdot N$
$\therefore \sim(M \cdot N) \cdot L$ | 5. O
$\therefore O \cdot \sim O$ |
| 2. $[(D \vee E) \supset F] \cdot [F \supset (G \equiv H)]$
$(D \vee E) \vee F$
$\therefore F \vee (G \equiv H)$ | | 6. P
$\therefore P \vee [Q \equiv (R \cdot \sim P)]$ |
| 3. $I \supset \sim J$
$K \supset I$
$\therefore K \supset \sim J$ | | 7. $S \vee \sim T$
$\sim \sim T$
$\therefore \sim S$ |

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

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

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

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

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