

Introduction to Logical Reasoning

Workshop on Natural Deduction

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Part I, Problem 1 Solution

1. $(W \vee X) \rightarrow Y.$

2. $W.$

$\therefore Y.$

3. $W \vee X.$ 2; Add.

4. $Y.$ 1, 3; M.P.

Part I, Problem 2 Solution

1. $D \rightarrow E$.

2. $(E \rightarrow F) \ \& \ (F \rightarrow D)$.

$\therefore D \rightarrow F$.

3. $E \rightarrow F$.

2; Simp.

4. $D \rightarrow F$.

1, 3; H.S.

Part 2, Problem 1 Solution

1. $Q \rightarrow R.$

2. $R \rightarrow S.$

3. $\sim S.$

$\therefore \sim Q \& \sim R.$

4. $\sim R.$

2, 3; M.T.

5. $\sim Q$

1, 4; M.T.

6. $\sim Q \& \sim R.$

5, 4; Conj.

Part 3, Problem 1 Solution

1. $L \vee (S \rightarrow Q).$

2. $\sim L \rightarrow (Q \rightarrow U).$

3. $\sim L.$

$\therefore S \rightarrow U.$

4. $S \rightarrow Q.$

1, 3; D.S.

5. $Q \rightarrow U.$

2, 3; M.P.

6. $S \rightarrow U.$

4, 5; H.S.

Part 3, Problem 2 Solution

1. $J \rightarrow B.$

2. $(J \& B) \rightarrow (C \vee M).$

3. $(C \vee M) \rightarrow \sim S.$

4. $(J \rightarrow \sim S) \rightarrow P.$

$\therefore P.$

5. $J \rightarrow (J \& B).$

1; Abs.

6. $J \rightarrow (C \vee M).$

5, 2; H.S.

7. $J \rightarrow \sim S.$

6, 3; H.S.

8. $P.$

4, 7; M.P.

Next Class...

We will do further work with natural deduction.

Do not forget, **exam #2** is a week from today (November 15TH). Anything from units #3, #4, and #5 is fair game. We will have an in-class review session this Tuesday (November 13TH), but please start studying now!

Also, please don't forget to turn in your response to the Workshop #8 Questionnaire on your way out.