Philosophy 240: Symbolic Logic Hamilton College
Fall 2008 Russell Marcus
Mondays, Wednesdays, Fridays: 9am - 9:50am rmarcus1@hamilton.edu

Conditionals Handout

I. Types of Conditionals

A: Indicative conditionals: If the Mets lost, then the Cubs won.
B: Conditional questions: If I like logic, what class should I take next?
C: Conditional commands: If you want to pass this class, do the homework.
D: Conditional prescriptions: If you want a good life, you ought to act virtuously.
E: Subjunctive, or counterfactual, conditionals: If he were offered the bribe, he would take it.

II. Turning non-indicative conditionals into indicative conditionals

B': If you like logic, then you should take linear algebra next.
C': If you want to pass the class, you do the homework.
D': If you want a good life, you act virtuously

III. The truth table for the material conditional

P	⊃	Q
T	T	T
T	F	F
F	T	T
F	T	F

IV. A problem for the material interpretation

F: If I were to jump out of the window right now, I would fall to the ground.
G: If I were to jump out of the window right now, I would fly to the moon.

V. Other options for the truth table

Option A

P	⊃	Q
T	T	T
T	F	F
F	T	T
F	F	F

Option B

P	⊃	Q
T	T	T
T	F	F
F	F	T
F	T	F

Option C

P	⊃	Q
T	T	T
T	F	F
F	F	T
F	F	F

VI. Counterfactual conditionals and science

G: If this salt had been placed in water, it would have dissolved.
H: This table is soluble in water.

I: If this is gold, then it is not water-soluble.
So, it is not the case that if this is gold then it is water-soluble.

VII. The paradoxes of material implication

J: If I am a man then some roses are red.

K: If I am a squirrel, then you are all chipmunks.

L: $P \supset (Q \supset P)$
M: $\sim P \supset (P \supset Q)$
N: $(P \supset Q) \vee (Q \supset P)$

VIII. Good uses for material implication.

O: If the alternate interior angles formed by two lines intersected by a third are congruent, then the two lines are parallel.
P: If the hurricane hits, we will sustain great damage.

IX. Non-truth functional conditionals

Leave '$P \supset Q$' as truth-functional.
Take '$P \Rightarrow Q$' as non-truth-functional.
C.I. Lewis defined '$P \Rightarrow Q$' as '$\Box(P \supset Q)$'.

X. Some other possible paper topics (see the course bibliography for some references):
Grice's interpretation, which Fisher discusses
C.I. Lewis's operator
Connections to three-valued logics
Lewis Caroll's paper, "A Logical Paradox"
Goodman, and the relation between conditionals and scientific laws
Frank Jackson and David Lewis have extended treatments of conditionals