

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	\supset	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	\supset	Q
T	T	T
T	F	F
F	T	T
F	F	F

Option B

P	\supset	Q
T	T	T
T	F	F
F	F	T
F	T	F

Option C

P	\supset	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 Carroll's paper, "A Logical Paradox"

Goodman, and the relation between conditionals and scientific laws

Frank Jackson and David Lewis have extended treatments of conditionals