

⇒ Understanding Material Implication (Part 1) ⇒

Each exercise will present you with a conditional statement, and you will be asked as series of questions about each conditional statement at hand. Some of the questions will ask you to use the implication symbol “ \Rightarrow ”. Use your notes, and follow the directions!¹

1. “If the dog is asleep then the cat is awake.”

(a) What is the *antecedent* of the conditional statement?

(b) What is the *consequent* of the conditional statement?

(c) Let “P” stand for the *antecedent* of the conditional statement, and let “Q” stand for the *consequent* of the conditional statement.

(i) In logical notation, *write* the conditional statement.

(ii) In logical notation, write the *contradictory* of the conditional statement.

(iii) In logical notation, write the *converse* of the conditional statement.

(iv) In logical notation, write the *contrapositive* of the conditional statement.

2. “The birds chirp if the man yawns.”

(a) What is the *antecedent* of the conditional statement?

(b) What is the *consequent* of the conditional statement?

(c) Let “P” stand for the *antecedent* of the conditional statement, and let “Q” stand for the *consequent* of the conditional statement.

(i) In logical notation, *write* the conditional statement.

(ii) In logical notation, write the *contradictory* of the conditional statement.

(iii) In logical notation, write the *converse* of the conditional statement.

(iv) In logical notation, write the *contrapositive* of the conditional statement.

¹ The first four of the five questions are each worth 24%, and the fifth question is worth 4%.

3. "The dog barks only if the cat meows."

(a) What is the *antecedent* of the conditional statement?

(b) What is the *consequent* of the conditional statement?

(c) Let "P" stand for the *antecedent* of the conditional statement, and let "Q" stand for the *consequent* of the conditional statement.

(i) In logical notation, *write* the conditional statement.

(ii) In logical notation, write the *contradictory* of the conditional statement.

(iii) In logical notation, write the *converse* of the conditional statement.

(iv) In logical notation, write the *contrapositive* of the conditional statement.

4. "If the horse gallops, the baby cries."

(a) What is the *antecedent* of the conditional statement?

(b) What is the *consequent* of the conditional statement?

(c) Let "P" stand for the *antecedent* of the conditional statement, and let "Q" stand for the *consequent* of the conditional statement.

(i) In logical notation, *write* the conditional statement.

(ii) In logical notation, write the *contradictory* of the conditional statement.

(iii) In logical notation, write the *converse* of the conditional statement.

(iv) In logical notation, write the *contrapositive* of the conditional statement.

5. “Insofar as the wind blows, the sun shines.”

(a) What is the *antecedent* of the conditional statement?

(b) What is the *consequent* of the conditional statement?

(c) Let “P” stand for the *antecedent* of the conditional statement, and let “Q” stand for the *consequent* of the conditional statement.

(i) In logical notation, *write* the conditional statement.

(ii) In logical notation, write the *contradictory* of the conditional statement.

(iii) In logical notation, write the *converse* of the conditional statement.

(iv) In logical notation, write the *contrapositive* of the conditional statement.

6. “The wolf howls if the moon shines.”

The conditional statement is logically equivalent with *which* of the following statements?

(a) The wolf howls only if the moon shines.

(b) If the moon shines then the wolf howls.