CONDITIONAL LOGIC

➢ **Vocabulary.** There are three kinds of symbols.

1. **Sentence Letters:** P, Q, R, ..., X, Y, Z (perhaps with numerical subscripts)

2. **Logical Symbols:** ~, →

3. **Punctuation Marks:** ), (  

➢ **Formation Rules.** The properly formed expressions are called (symbolic) sentences. They are specified by the following rules.

R1. Every sentence letter is a sentence.
R2. If φ and ψ are sentences, then so are

\[ \sim \phi \]

and

\[ (\phi \rightarrow \psi) \]

(Nothing is a sentence unless its being so is determined by R1 and R2.)

**EXAMPLES**

**Sentences:** P, Q, R, (P→Q), (((P→(~Q→R))→((P→~Q)→(P→R)))

**Not a sentence:** P~, P→Q, ~R, (P→→R)

➢ **Proof Rules.** The proof rules are given by using the three forms of derivation and the four rules of inference to box and cancel in accord with the specifications for a *complete derivation* (pp. 24-25 of the text).