

Exercises for 2.7

1. I say in the text that $s_1 \supset s_2$ can be read as ‘ s_1 only if s_2 ’. Explain why, given the truth table of $s_1 \supset s_2$, it makes sense to read it as ‘ s_1 only if s_2 ’.
2. One way of reading $s_1 \supset s_2$ that I do not give in the text is ‘ s_2 if s_1 ’. Explain why this is also a good way of reading $s_1 \supset s_2$.
3. How could we say ‘ s_1 if and only if s_2 ’ by utilizing the availability of \supset ?
4. Give the syntax tree and truth table of each of the following sentences.
 - (a) $\neg P \vee Q$
 - (b) $P \supset \neg \neg P$
 - (c) $\neg \neg P \supset P$
 - (d) $(P \vee Q) \supset R$
 - (e) $(P \supset R) \wedge (Q \supset R)$
5. Show, using truth tables, that $s_1 \supset s_2$ is logically equivalent to $\neg s_1 \vee s_2$.
6. Explain why the following is true: If s_1 and s_2 are logically equivalent, then $s_1 \supset s_2$ is a tautology.