

Lecture C19

Response to 'Muddiest Part of the Lecture Cards'

(9 respondents)

1) *Is the \vee an "and/or" or an "xor"?*

\vee represents an OR.

2) Say $\neg A \vee \neg B$, does this mean A and B must be opposites, that is:

| \neg | B | $\neg A$ | $\neg B$ | $\neg A \vee \neg B$ |
|--------|---|----------|----------|----------------------|
| 0 | 0 | 1 | 1 | 0 |
| 0 | 1 | 1 | 0 | 1 |
| 1 | 0 | 0 | 1 | 1 |
| 1 | 1 | 0 | 0 | 0 |

No, it does not. There is a mistake in the truth table. $\neg A \vee \neg B$ has the value 1 when both A and B equals 0.

| | B | $\neg A$ | $\neg B$ | $\neg A \vee \neg B$ |
|---|---|----------|----------|----------------------|
| 0 | 0 | 1 | 1 | 1 |
| 0 | 1 | 1 | 0 | 1 |
| 1 | 0 | 0 | 1 | 1 |
| 1 | 1 | 0 | 0 | 0 |

3) Are these equivalent: $\neg\forall x(N(x) \wedge R(x))$ $\forall x(\neg N(x) \rightarrow \neg R(x))$?
No they are not.

The first term can be rewritten as: $\exists x (\neg N(x) \wedge \neg R(x))$

And the second term can be rewritten as: $\forall x (N(x) \vee \neg R(x))$

4) *No mud, cool stuff, etc.* (4 students)