PHIL 220: Introduction to Logic

Week 4 Discussion (09/19/2025)

Note

The second online assignment is due by midnight next Monday (09/22/2024).

You can go to your user page on Carnap and check which questions of the quiz or assignment you have successfully submitted.

Goals for today

Solve complex truth tables about tautologies, contradictions, equivalences, consistency, and validity. If time permits, we will have a warm-up on translation.

Draw the truth tables for the following sentences and identify their properties, if any.

Exercise

1. $((\neg\neg(\neg p \to q)) \to (p \wedge \neg q))$

2. (1). $(p \wedge q) \vee (\neg p \wedge \neg q)$; (2). $(p \vee q) \to (p \wedge q)$

3. $((p \to r) \wedge (q \to r)) \to ((p \vee q) \to r)$

4. $(p \to q) \wedge (s \wedge \neg(\neg q \to \neg p))$

5. $\{p, \neg r, (p \wedge q) \to \neg r, q \to (p \vee r)\}$

6. $(p \vee \neg q) \to q, \neg p \to q \models q$

7. $((p \wedge \neg q) \vee (\neg p \wedge r)), q \to r \models \neg p \wedge r$

Given the translation key below, translate the following sentence into propositional logic.

p: You will become rich.

q: You buy a lottery ticket from me.

r: The lottery is rigged

t: I'm part of the scheme

Sentence to translate:

You will neither become rich nor buy a ticket from me; otherwise, the lottery is rigged.