

# Homework 7

---

CIS-623 STRUCTURED PROGRAMMING & FORMAL METHODS

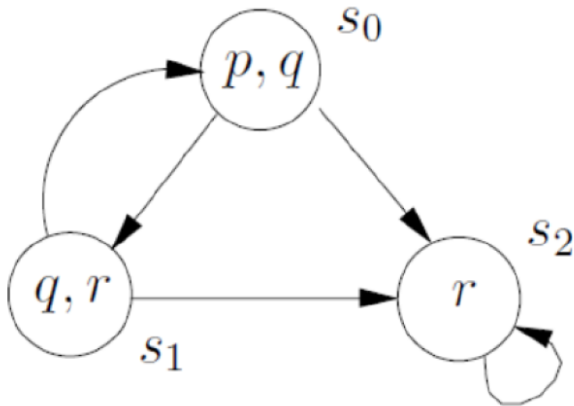
PROF. MEHMET KAYA

3/10/2022

Anthony Redamonti  
SYRACUSE UNIVERSITY

Question 1:

Which of the following satisfaction relations hold for the model M given below?



1.  $M, s_0 \models p \rightarrow q$  Yes
2.  $M, s_0 \models p \rightarrow r$  No
3.  $M, s_0 \models \neg(q \rightarrow r)$  Yes
4.  $M, s_0 \models G(p \rightarrow q)$  No
5.  $M, s_0 \models F(G(r))$  Yes
6.  $M, s_0 \models G(F(r))$  Yes
7.  $M, s_0 \models G(p \vee r)$  Yes
8.  $M, s_0 \models F(p \vee r)$  Yes
9.  $M, s_0 \models \neg F(p \vee r)$  Yes
10.  $M, s_0 \models GF(r \wedge p)$  No

Question 2:

Give five more formulas that are not satisfied by the model  $M$  and the initial state  $s_0$ , and five formulas that are satisfied by the same model and state. Our formulas must include at least one temporal logic connector.

