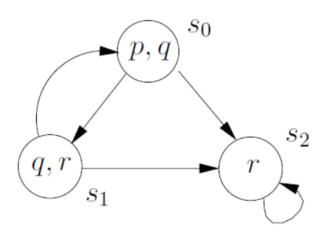
## **CIS 623 Structured Programming and Formal Methods**

Assignment 7 Kevin MartinV

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



- M, s0 |= p->q
- M, s0 |= p->r
- M, s0  $\mid = X(q->r)$
- M, s0 |= G(p->q)
- M, s0 |= FGr M, s0 |= GFr
- M, s0 = G(pUr)
- $M, s0 \mid = F(p U r)$
- $M, s0 \mid = XF(p U r)$
- M, s0 = GF(rRp)

True True

True

False - Not every future state guarantees r. can still end up back at S0 True (globally, there is a future state that will end up at r)

True

True

True

False - can get stuck at r (S2)

2. Give five more formulas that are not satisfied by the model M and the initial state s0, and five formulas that are satisfied by the same model and state. Our formulas must include at least one temporal logic connector.

False - can end up back at S0 (S0->S1->S0)

Satisfied by model M:1. M,

Not Satisfied by Model M:1. I