Study Guide for Week of February 3, 2003

Kripke Structures

Readings: CGP 2.2.2, 2.2.3, 2.3
Think About:

1. Is $pc = \perp$ needed on page 23, line -7?
2. Something is wrong with "same(V_i)" that appears in several places on page 24. What should it be?
3. What is the difference between **wait**(v=0) and **lock**(v)?
4. The program on p 25 has had everything removed except for the mutual exclusion implementation. If the critical or noncritical regions had more statements in them, where would they go?
5. On pages 25 and 26, the formula giving the transition relation for the program on page 25 is given. How is this obtained in a step-by-step manner using the definitions given in Section 2.2.2?
6. The value of one variable has been left out in all the states in Figure 2.2. Which variable?
7. In Figure 2.2, determine which of P_0 and P_1 acts for each of the transitions.

Temporal Logics

Readings: CGP Ch3, HR 3.2, 3.3, 3.3.4, 3.8
Think About:

1. Understand the relation between a Kripke structure and its computation tree.
2. Be sure to understand the definition of "$\models$" on page 29 of CGP. It's important.
3. Be able to prove the equivalences on pages 30 and 31 of CGP.
4. Among the five logics CTL*, CTL, LTL, ACTL, ACTL*, which relationships are not determined by the information given in Chapter 3 of CGP?
5. On page 153 of HR, the formula $EFE[rUq]$ is given. Give a simpler CTL formula that is equivalent to this one.
6. Explain what the no strict sequencing formula on page 171 of HR is saying.
7. What are the differences between the mutual exclusion examples in CGP Section 2.3 and HR Section 3.4?
8. How do you show that a formula is not equivalent to an LTL formula?