Homework Assignment 2, Part a

Due: Thursday, October 4, 2001

Reading:

Section 5.1, Sections 6.1-6.3 and 6.7 of *Distributed Algorithms.*

Basic Problems:

1. Exercise 6.5.
2. Exercise 6.19

Regular Problems:

3. Exercise 5.1
4. Assume that $n > 4f$. Design an algorithm that uses a subroutine for binary Byzantine agreement and solves multivalued Byzantine agreement. The algorithm should require only one additional round.
5. Exercise 6.45.
6. Try to modify the *FloodSet* algorithm by adding a local *early decision* test condition, in order to obtain the following additional *early decision* time bound property:
   If the execution has only $f' \leq f$ failures, then all nonfaulty processes decide (but don't halt) by the end of round $f' + 2$.
   Prove that your algorithm works, that is, that it solves the stopping agreement problem for stopping failures, and that it has the additional time bound property.
   Note: We require that all processes that decide (even if they later fail), decide on the same value.