MC97 Homework 4

Due May 8, 1996; Max Hailperin

Do one, and only one, of the following problems; you may choose either:

1. **(For the theorist:)** Prove that no node that is *latest* is *up-safe*, using the definitions of those terms given in the handout on suppression of partial redundancies. You will presumably want to first show that no node that is *earliest* is *up-safe*, then use that to show that no node that is *delay* is *up-safe* (see below), and then finally use that to (trivially) show that no node that is *latest* is *up-safe*. Note: in showing that no *delay* node is *up-safe*, you may assume that all nodes are reachable from the start node.

2. **(For the practitioner:)** Subject the flow graph on the next page to the dataflow analyses described in the handout on suppression of partial redundancies, using $a + b$ as the expression in question. Which nodes are down-safe? Up-safe? Earliest? Delay? Latest? Which nodes should $a + b$ be computed at the beginning of?