Spring Semester, 2007
Problem #2
Due Date: Tuesday, February 27

In a network which is a chain of $n$ processors $p_1, p_2, \ldots, p_n$, Fan and Lynch show that the worst case clock skew between neighbors depends on the size of $n$, even though the distance between them is 1! Consider the following algorithm:

At real time $t$, neighboring nodes $p_i$ and $p_{i+1}$ send their local times $L_i(t)$ and $L_{i+1}(t)$ to each other. When they receive the message, each node sets its clock to the larger of its own clock value and the received timestamp.

**Prove that at real time $t + 1$, the local clocks of $p_i$ and $p_{i+1}$ differ by at most 1. Argue why this does not contradict the lower bound by Fan and Lynch.**