Psy 5018H: Math Models Human Behavior
Spring 2007
Prof. Paul Schrater
Homework #2, Due Feb. 8th, midnight.

Problem 1: You have contracted a deadly disease only Amazidrug can cure. You want to decide whether to take the drug. Assume your goal is to maximize your time alive, and that your utility for remaining lifetime is equal to the number of days remaining. Assume that death from Amazidrug poisoning comes after 1 day, if you are unlucky. Assume your natural remaining lifespan would be 50 years if you were cured, and that you will die in 200 days if you are not cured. Assume the actions are take and not-take and the outcomes are cure, not cure, and poisoned. Assume any relevant probability information from the previous problem. The probability of being cured from the drug (when it is not poison) is .99. The probability of the disease spontaneously disappearing is .0001 without taking the drug.

- Write down the Utility matrix for this problem.
- What is the optimal action, take or not?
- What is the expected lifetime for the optimal decision?