

## Homework #4: Chapters 11, 12, 18, and 19

The following exercises are due at the beginning of class on April 25.

1. Look at the description of Shakey's world in the book. (pages 360-362). Describe Shakey's six actions in the STRIPS language. Assuming the initial state shown in Figure 11.15, give a total-order plan that Shakey could use to get Box2 into Room2. Represent all of the aspects of the initial state that are relevant to this plan.
2. Do exercise 11.1 from the book (p. 364). Make sure that your plan follows the principle of least commitment.
3. Look at Figure 12.1 (p. 373). Provide decompositions that correctly implement the Obtain Permit and Hire Builder steps. Assume that Obtain Permit has a precondition of owning land and the effect of having a permit. It involves getting a permit form, filling out the form and getting the form approved. Assume that Hire Builder has a precondition that you can pay and the effect of having a signed contract. It involves interviewing builders, choosing a builder and signing a contract. Show the effect of decomposing Obtain Permit and Hire Builder given the partial-order plan in Figure 12.3 (p. 375).
4. Draw a decision tree for the problem of deciding whether or not to drive forward upon reaching a road intersection. Include at least five tests (internal nodes) in your tree.
5. Do exercise 19.1 from the book (p. 596).