Philosophy 4300: Decision Theory
Spring 2019

Homework 1 – due in class on Friday, Feb 1.

You should feel free to work with others on this homework and to talk to me about it. However, any work you produce must be your own.

1) Do Resnik's problem #1 on page 13.

2) Turn the following decision problem into a decision tree. Then also turn it into a decision table.

You are aware that the New England Patriots are playing the Los Angeles Rams in the upcoming Super Bowl. Your friend is a bookie and says that for $11 right now he will give a ticket that pays $20 if the Patriots win or a ticket that pays $20 if the Rams win. He also promises that if you do buy a ticket, then during the game at half-time if the team you bet on is losing, he will allow you to cancel the bet and get $5 back if you wish.

3) Look at the following decision table and determine which strategies dominate which other strategies (if any).

	State 1	State 2	State 3	State 4
Act 1	1	2	3	4
Act 2	2	2	2	2
Act 3	3	2	3	2
Act 4	4	2	3	3

4) Using the table from problem 3, which act or acts are best according to the Maximin rule? Which acts are best according the lexical maximin rule? Explain your answers.

5a) It is possible for the maximin rule to regard as rational a strategy that is dominated by another strategy. Give an example of this.

5b) On the other hand, if an act is dominated, then the maximin rule will never say that it is the uniquely best act. Explain why not.

6) Do Resnik's problems 1, 2, and 3 on pages 27 and 28.

7) An important property of preference orderings is that they are negatively transitive – that is, if it is not true that x is preferred to y and not true that y is preferred to z, then it is not true that x is preferred to z. Prove that this follows from Resnik's conditions O1-O8 on page 23.