Problem Set 1

February 26, 2013

1. Read literature to summarize violations of independent axiom.Find out alternative approach to modeling risk preference.
   (hint:Machina 1987)

2. The completeness axiom's ordering on lotteries naturally induces an ordering on the set of outcomes.To see this, define an "elementary" or "primitive" lottery, e_i, which returns outcome x_i with probability 1 and all other outcomes with probability zero,that is,$e_i = \{p_1, \ldots p_{i-1}, p_i, p_{i+1}, \ldots p_n\} = \{0, \ldots, 0, 1, 0, \ldots 0\}$,where $p_i = 1$ and $p_j = 0 \ \forall j \neq i$.Without loss of generality, suppose that the outcomes are ordered such that $e_n \succsim e_{n-1} \succsim \ldots \succsim e_1$.Why the relationship,$x_n \geqslant x_{n-1} \geqslant \ldots \geqslant x_1$, is not necessarily true?
   (hints: I strongly suggest you read the materials covering this part in our textbook.)

3. Prove that the von Neumann-Morgenstern expected utility function is unique up to a linear monotonic transformation, which is a cardinal property .Explain what is "cardinal" utility.

The Problem Set 1 is due to Mar. 4th.