Department of Economics, University of California, Davis

Ecn 106 – Decision Making – Professor Giacomo Bonanno

HOMEWORK # 1 (for due date see web page)

Consider the following decision problem:

acts ↓ \ states →	s_1	s_2	s_3	s_4	s_5	s_6
a_1	z_1	z_2	z_3	z_4	z_5	z_6
a_2	z_7	z_8	z_9	z_{10}	z_{11}	z_{12}
a_3	z_{13}	z_{14}	z_{15}	z_{16}	z_{17}	z_{18}

The agent's ranking of the outcomes is as follows (where $\succ$ means 'better than' and $\sim$ means 'just as good as'):

$$z_{15} \sim z_9 \succ z_{16} \sim z_{13} \sim z_7 \succ z_{10} \succ z_5 \succ z_{17} \sim z_6 \sim z_2 \succ z_{14} \succ z_8 \sim z_{18} \sim z_1 \succ z_3 \succ z_{11} \sim z_{12} \succ z_4$$

(a) Represent the ranking by means of a utility function with values in the set $\{1,2,\ldots,9,10\}$

(b) Re-write the decision problem replacing outcomes with utilities.

(c) For every two acts, explain whether one dominates the other (and if so, state whether it is strict or weak dominance).

(d) Find the Maximin solution.

(e) Suppose now that, before deciding what to do, the agent learns that act a_3 is no longer available and an expert informs the agent that, for sure, the state is not any of the odd-numbered ones (that is, the true state is one of s_2, s_4, s_6). Find the Maximin solution of this reduced decision problem.