state →	s_1	s_2	s_3
act ↓			
a_1	4	3	1
a_2	6	2	2
a_3	5	3	2
a_4	6	1	0
a_5	3	2	5

Dominance:

So we can simplify

state →	s_1	s_2	s_3
act ↓			
a_2	6	2	2
a_3	5	3	2
a_5	3	2	5

What then?

First a different example:

state →	s_1	s_2	s_3
act ↓			
a_1	4	3	1
a_2	3	2	2
a_3	5	3	2
a_4	6	1	0
a_5	3	3	4

One criterion that can be used is the **MaxiMin** criterion.

Now back to the previous problem:

state →	s_1	s_2	s_3
act ↓			
a_2	6	2	2
a_3	5	3	2
a_5	3	2	5

MaxiMin =

A refinement is the **LexiMin**

state →	s_1	s_2	s_3
act ↓			
a_2	6	2	2
a_3	5	3	2
a_5	3	2	5

Here the LexiMin picks

One more example:

state →	s_1	s_2	s_3	s_4
act ↓				
a_1	2	3	1	5
a_2	6	2	2	3
a_3	5	3	2	4
a_4	6	1	0	7
a_5	3	2	5	1

MaxiMin =

LexiMin =

Special case: outcomes are sums of money

state $\rightarrow$ act $\downarrow$	s_1	s_2	s_3	s_4
a_1	\$12	\$30	\$0	\$18
a_2	\$36	\$6	\$24	\$12
a_3	\$6	\$42	\$12	\$0

Suppose that we are able to assign probabilities to the states:

state $\rightarrow$	s_1	s_2	s_3	s_4
	$\frac{1}{3}$	$\frac{1}{6}$	$\frac{5}{12}$	$\frac{1}{12}$

a_1 is the lottery

a_2 is the lottery

a_3 is the lottery

The expected values are:

Definition of attitude to risk ….

Given a money lottery *L*, imagine giving the individual a choice between *L* and the expected value of *L* for sure, that is, the choice

between $\begin{pmatrix} \mathbb{E}[L] \\ 1 \end{pmatrix}$ and L or, written more simply, between $\mathbb{E}[L]$ and L

If she says that

- $\mathbb{E}[L] \succ L$ we say that she is **risk** **relative to *L***
- $\mathbb{E}[L] \sim L$ we say that she is **risk** **relative to *L***
- $L \succ \mathbb{E}[L]$ we say that she is **risk** **relative to *L***

So in the above example, if we assume that the agent is risk neutral relative to every lottery and her preferences are transitive, then, since

$\mathbb{E}[a_1] = 10.5$

$\mathbb{E}[a_2] = 24$

$\mathbb{E}[a_3] = 14$

Can we infer risk attitudes from choices?

Let $L = \begin{pmatrix} \$40 & \$60 \\ \frac{1}{2} & \frac{1}{2} \end{pmatrix}$ Then $\mathbb{E}[L] =$

Suppose Ann's preferences are transitive, she prefers more money to less and she says that she prefers \$49 to *L*.

Suppose Bob's preferences are transitive, he prefers more money to less and he says that he prefers \$51 to *L*.