HW 11.5

Wednesday, October 21, 2020 7:19 PM

Passed Solution Review

5. This exercise explores how, in a mixed-strategy equilibrium, players must put positive probability only on best responses. Consider the game in the following figure.

$\gamma_1 \rightarrow x = .2$

$\sigma_1 \rightarrow x = .5$

1 \ 2	L	M	R
U	x, x	$x, 0$	$x, 0$
C	$0, x$	$2, 0$	$0, 2$
D	$0, x$	$0, 2$	$2, 0$

Compute the pure-strategy and mixed-strategy Nash equilibria for this game, and note how they depend on x. In particular, what is the difference between $x > 1$ and $x < 1$?

For both $x>1$ and $x<1$, $NE=(U,L)$. When $x<1$ there is also $\{(0,.5,.5),(0,.5,.5)\}$ unless $x>2$

This whole question is very confusing if $x \geq 2$ or $x \leq 0$

If all three played... $\Gamma_1 = \Gamma_2 = (1-x, 1/2, 1/2)$

↑ symmetric game

If $x < 0$, U,L is dominated which forces $\Gamma_1 = \Gamma_2 = (0, 1/2, 1/2)$

If $0 \leq x \leq 1$ U,L is Pure Eq and $(1-x, x/2, x/2)$ is mixed

I initially had the basis, but did not consider all cases