



课程名称: Game Theory 实验日期: _____ 年 _____ 月 _____ 日

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Problem. 1. Bayesian Hawk-Dove Game.

①.

	HH	HD	DH	DD
H	$-2(1-p), 2(1-p)$	$6(1-p), 1-p$	$6p-2(1-p), p+2(1-p)$	$6, 1$
D	$1, 6$	$p+3(1-p), 6p+3(1-p)$	$3p+1-p, 3, 3$ $3p+6(1-p)$	

②.

	HH	HD	DH	DD
H	$2p-2, 2-2p$	$6-6p, 1-p$	$8p-2, 2-p$	$6, 1$
D	$1, 6$	$3-2p, 3+3p$	$1+2p, 6-3p$	$3, 3$

For player 1 & 2 ~~DD~~ mark out the best response.

(D, HH) is always a NE.

the NE (H, DH) exists only when $8p-2 \geq 1+2p$, or $p \geq \frac{1}{2}$.

Problem. 2. Bayesian Public Good.

a. Payoff matrix.

	WW	WS	SW	SS
W	$(12, 8-2p)$	$(14p-2, 12p-6)$	$(12-14p, 8+2p)$	$(-2, 16p-6)$
S	$(10, 4-6p)$	$(10p, -2)$	$(10-10p, 4-4p)$	$(0, -2p)$

b.c.d $p = \frac{1}{2}$.

player 1's best response is:

WW \rightarrow W. WS \rightarrow W, S. SW \rightarrow W, S. SS \rightarrow S

player 2's best response is:

Standard: W \rightarrow S. S \rightarrow S
 Giving: W \rightarrow W. S \rightarrow W. \Rightarrow W \rightarrow SW
 S \rightarrow SW.

So the bayesian NE is: (W, SW) (S, SW).

e. Easy to find that SW is a strictly dominant strategy.

$p > \frac{1}{2}$. NE is (S, SW)

$p < \frac{1}{2}$. NE is (W, SW).

f.

	W	S
W	$(12, 8-2p)$	$(-2, 16p-6)$
S	$(10, 4-6p)$	$(0, 2p-2)$

NE is (W, W).