Weekly 5 Section Version

Phil 444

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The questions all concern the signaling game shown below. The game is like the ones we discussed in class. First Nature reveals a type (A or B), then Proposer sends a signal (Left or Right), then Responder, seeing the signal but not the state, chooses and action (Up or Down). The payout to each player is a function of all three choices, as shown in both the table and the tree.

Table 1: Payouts for Weekly 5 section version

Type	Proposer	Responder	Payouts
A	L	D	4, 3
A	L	U	0, 3
A	R	D	3, 1
A	R	U	2, 2
B	L	D	3, 1
B	L	U	4, 3
B	R	D	4, 3
B	R	U	1, 0

In this tree, Proposer has four possible strategies:

1. Left if A, Left if B (LL)
2. Left if A, Right if B (LR)
3. Right if A, Left if B (RL)
4. Right if A, Right if B (RR)

And Responder has four possible strategies

1. Up if Left, Up if Right (UU)
2. Up if Left, Down if Right (UD)
3. Down if Left, Up if Right (DU)
4. Down if Left, Down if Right (DD)

That leads to 16 possible combinations of strategies. For each of these 16, work out

A. What Proposer's *expected* payout is.
B. What Responder's *expected* payout is.

Once you've done that, for each pair work out whether it is:

A. A pooling equilibrium;
B. A separating equilibrium; or
C. Not an equilibrium.

Answers

Table 2: Expected values for Weekly 1 section version

P1	DD	DU	UD	UU
LL	3.6, 2.2	3.6, 2.2	1.6, 3	1.6, 3
LR	4, 3	2.8, 1.8	1.6, 3	0.4, 1.8
RL	3, 1	2.4, 1.6	3.4, 1.8	2.8, 2.4
RR	3.4, 1.8	1.6, 1.2	3.4, 1.8	1.6, 1.2

The only pooling equilibrium is:

- RR, UD

The separating equilibria are:

- LR, DD
- RL, UU

Note that in general there may be 0, 1, or more of each type of equilibrium.