

ANSWERS TO PRACTICE PROBLEMS 1

- 1.** (a) Your ranking of the outcomes is (using an ordinal utility function with values 1, 2, 3 and 4: the higher the utility the better the outcome):

		No kill	Kill
Your ranking	Pay	3	1
	No pay	4	2

The dognapper has the following ranking

		No kill	Kill
Ranking of Nice Freelance	Pay	4	3
	No pay	2	1

		No kill	Kill
Ranking of Nasty Freelance	Pay	3	4
	No pay	1	2

		No kill	Kill
Ranking of Professional Dognapper	Pay	4	2
	No pay	1	3

Thus you are playing one of the following games:

Nice Freelance dognapper

		Not Kill	Kill
Y O U	Pay	3 , 4	1 , 3
	Not Pay	4 , 2	2 , 1

Nasty Freelance dognapper

		Not Kill	Kill
Y O U	Pay	3 , 3	1 , 4
	Not Pay	4 , 1	2 , 2

Professional dognapper

		Not Kill	Kill
Y O U	Pay	3 , 4	1 , 2
	Not Pay	4 , 1	2 , 3

(b) Now let's see the ranking of the police.

Ranking of Police

		No kill	Kill
Pay		2	1
	No pay	4	3

Thus if you call the police one of the following games will be played:

Nice Freelance dognapper

		Not Kill	Kill
P o l i c e	Pay	2 , 4	1 , 3
	Not Pay	4 , 2	3 , 1

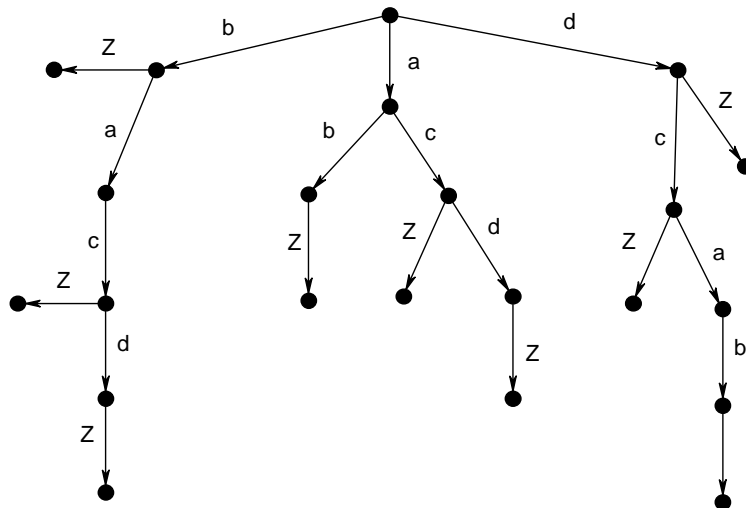
Nasty Freelance dognapper

		Not Kill	Kill
P o l i c e	Pay	2 , 3	1 , 4
	Not Pay	4 , 1	3 , 2

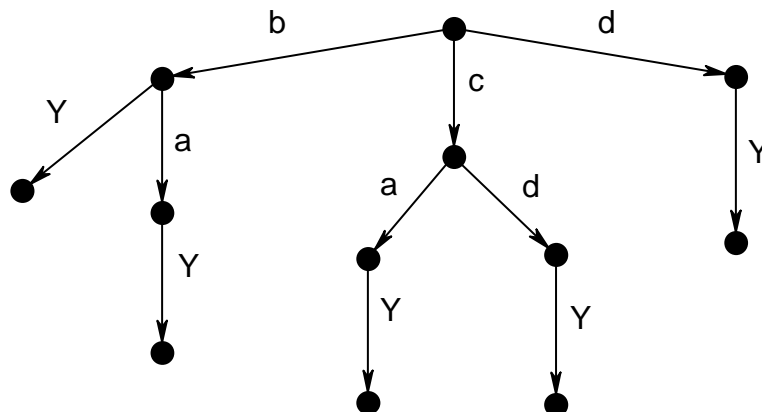
Professional dognapper

		Not Kill	Kill
P o l i c e	Pay	2 , 4	1 , 2
	Not Pay	4 , 1	3 , 3

- 2.** (a) Yvette has 9 possible strategies. She may visit any of the following sets of road junctions: b, bac, bacd, ab, ac, acd, dcab, dc, d. The following tree shows how to construct the possible strategies.



- (b) Zoe has only five strategies: b, ba, ca, cd, d. The following tree shows how to construct them.



(c) Assigning rows to Yvette and Columns to Zoe we have a 9×5 matrix game.

		ZOE				
		b	ba	ca	cd	d
Y V E T T E	b	Zoe wins	Zoe wins	Yvette wins	Yvette wins	Yvette wins
	bac	Zoe wins	Zoe wins	Zoe wins	Zoe wins	Yvette wins
	bacd	Zoe wins	Zoe wins	Zoe wins	Zoe wins	Zoe wins
	ab	Zoe wins	Zoe wins	Zoe wins	Yvette wins	Yvette wins
	ac	Yvette wins	Zoe wins	Zoe wins	Zoe wins	Yvette wins
	acd	Yvette wins	Zoe wins	Zoe wins	Zoe wins	Zoe wins
	dcab	Zoe wins	Zoe wins	Zoe wins	Zoe wins	Zoe wins
	dc	Yvette wins	Yvette wins	Zoe wins	Zoe wins	Zoe wins
	d	Yvette wins	Yvette wins	Yvette wins	Zoe wins	Zoe wins

3. (A)

Ann		Bob		
		0	1	2
0		0 , 10	0 , 10	0 , 10
1		0 , 10	0 , 10	0 , 10
2		0 , 10	0 , 10	10 , 0
3		0 , 10	10 , 0	10 , 0
4		10 , 0	10 , 0	10 , 0

(B)

Ann		Bob		
		0	1	2
0		0 , 5	0 , 10	0 , 5
1		0 , 10	0 , 5	-5 , 0
2		0 , 5	-5 , 0	10 , 0
3		-5 , 0	10 , 0	-5 , 0
4		10 , 0	-5 , 0	10 , 0

(C)

Ann		Bob		
		0	1	2
2		0 , 2	0 , 3	0 , 2
4		0 , 2	5 , 5	4 , 2
6		4 , 2	3 , 7	2 , 0