

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

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

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

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

Thus you are playing one of the following games:

Nice Freelance dognapper

		Not Kill	Kill
		Pay	3 , 4
		Not Pay	4 , 2
		Not Kill	1 , 3
		Kill	2 , 1

Nasty Freelance dognapper

		Not Kill	Kill
		Pay	3 , 3
		Not Pay	4 , 1
		Not Kill	1 , 4
		Kill	2 , 2

Professional dognapper

		Not Kill	Kill
		Pay	3 , 4
		Not Pay	4 , 1
		Not Kill	1 , 2
		Kill	2 , 3

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

		No kill	Kill
Ranking of Police	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
		Pay	2 , 4
		Not Pay	4 , 2
		Not Kill	1 , 3
		Kill	3 , 1

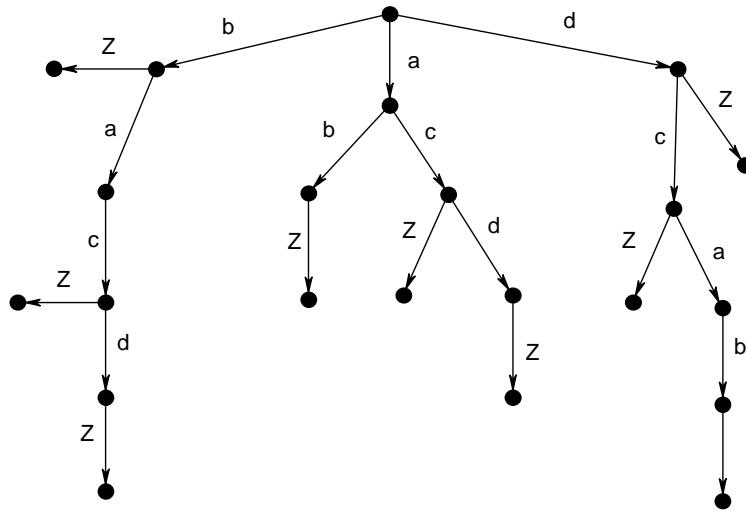
Nasty Freelance dognapper

		Not Kill	Kill
		Pay	2 , 3
		Not Pay	4 , 1
		Not Kill	1 , 4
		Kill	3 , 2

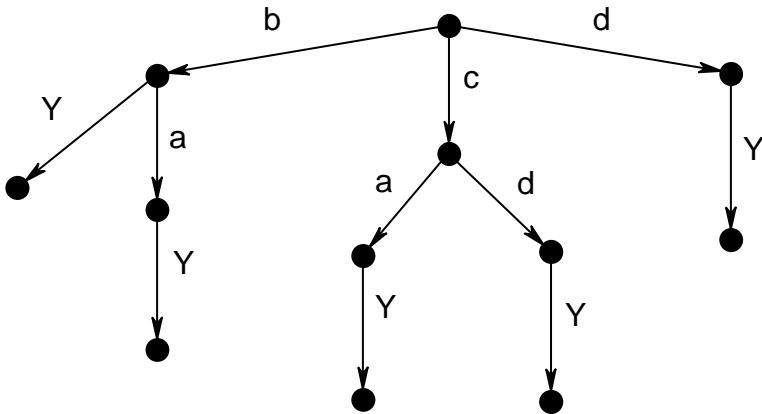
Professional dognapper

		Not Kill	Kill
		Pay	2 , 4
		Not Pay	4 , 1
		Not Kill	1 , 2
		Kill	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	b	Zoe wins	Zoe wins	Yvette wins	Yvette wins	Yvette wins
V	bac	Zoe wins	Zoe wins	Zoe wins	Zoe wins	Yvette wins
E	bacd	Zoe wins				
T	ab	Zoe wins	Zoe wins	Zoe wins	Yvette wins	Yvette wins
T	ac	Yvette wins	Zoe wins	Zoe wins	Zoe wins	Yvette wins
E	acd	Yvette wins	Zoe wins	Zoe wins	Zoe wins	Zoe wins
	dcab	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)

A		Bob		
		0	1	2
n	0	0 , 10	0 , 10	0 , 10
t	1	0 , 10	0 , 10	0 , 10
o	2	0 , 10	0 , 10	10 , 0
n	3	0 , 10	10 , 0	10 , 0
i	4	10 , 0	10 , 0	10 , 0

(B)

A		Bob		
		0	1	2
n	0	0 , 5	0 , 10	0 , 5
t	1	0 , 10	0 , 5	-5 , 0
o	2	0 , 5	-5 , 0	10 , 0
n	3	-5 , 0	10 , 0	-5 , 0
i	4	10 , 0	-5 , 0	10 , 0

(C)

A		Bob		
		0	1	2
n	2	0 , 2	0 , 3	0 , 2
t	4	0 , 2	5 , 5	4 , 2
o	6	4 , 2	3 , 7	2 , 0
n	i			
i	a			