TEK5010 Multiagent systems

Lecture 8: Non-cooperative game theory

Exercise: Symmetric games 1

Question 1

The following payoff matrix (A) is for the "Stag hunt".

		j	
		Stag	Hare
i	Stag	5,5	1,4
	Hare	4,1	2,2

The following payoff matrix (B) is for the "Deadlock".

		j	
		Defect	Coop
i	Defect	2,2	3,0
	Coop	0,3	1,1

The following payoff matrix (C) is for the "Game of chicken".

		j	
		Defect	Coop
i	Defect	1,1	4,2
	Coop	2,4	3,3

a) For each of these payoff matrices:
   i. Identify all (pure strategy) Nash equilibria
   ii. Identify all Pareto optimal outcomes
   iii. Identify all outcomes that maximize social welfare

b) "Program equilibria make cooperation possible in the one-shot Prisoner's dilemma". Explain and critically assess this statement.