

Exercise 2

a) Identify all (pure strategy) Nashes.

(A)

	D	C
D	⁴ 2, 2 [*]	⁵ 4, 1 ⁺
C	⁵ 1, 4 ⁺	⁶ 3, 3 ⁺

(D, D) is Nash; (D, C), (C, D), (C, C) is PD, (C, C) is SC

(B)

j

	i	
	H	T
H	0, -1 ⁺	0, -1 ⁺
T	-1, 1 ⁺	-1, 1 ⁺

No Nash eq. in MP. ($P_+ = 0,5$ & $P_H = 0,5$ in MSNA)

All outcomes are PO

All outcomes are SD

Ⓢ

	c		
	D	C	
j	D	² 1,1	⁶ † ₄ 2*
	C	⁴ 2, [†] 4	⁶ 3,3

$(C, D), (D, C)$ are Names in CG.

$(C, D), (D, C), (C, C)$ are PO

$(C, D), (D, C), (C, C)$ are SO

Summary of the 3 games

(A)

		j	
		D	C
i	D	*	+
	C	+	+0

(B)

		j	
		H	T
i	H	+D	+0
	T	+0	+0

(C)

		D	C
i	D		*+D
	C	*+D	+D

*Nash + PO \square SO

- (A) In PD it is not possible to reach a rational outcome (ie Nash) that is also SO
- (B) Need Mixed strategy for solving MP
- (C) Two strategies are rational, which to choose!

b) Program Equilibria

Basic idea is to compare strategies (programs or strings) before conditional action is taken by moderator.

"I will cooperate if you do"

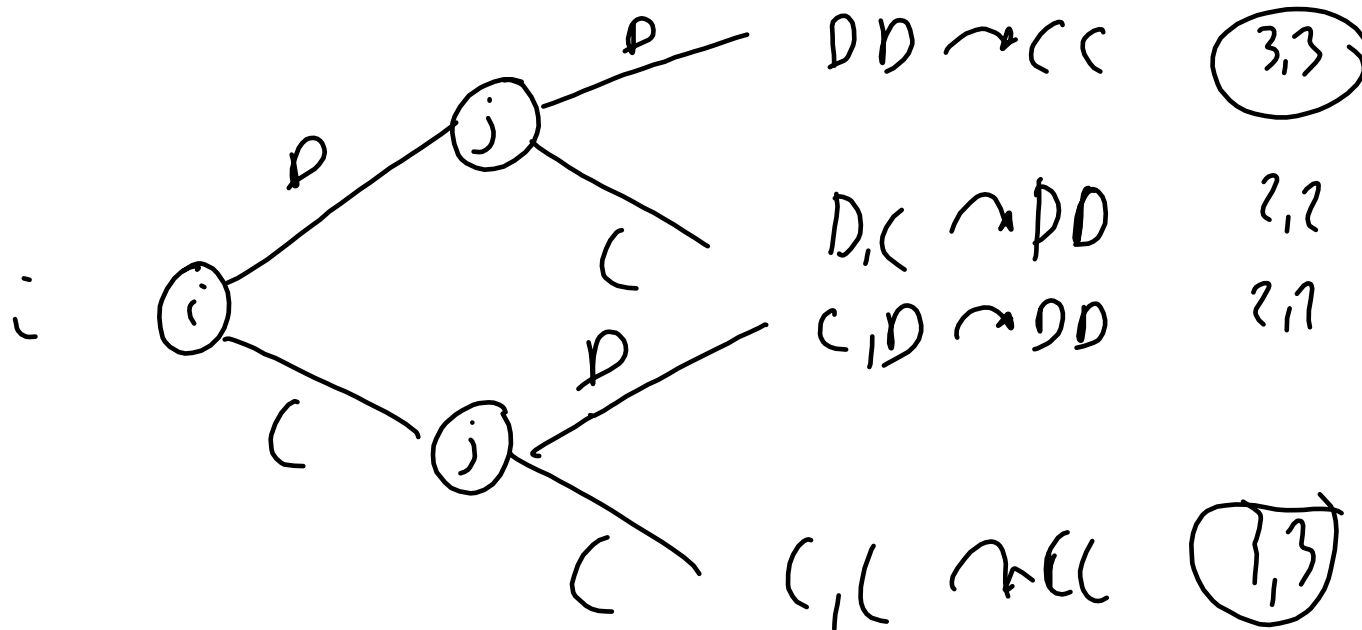
if $P_1 == P_2$ $P_1 = \text{program 1 (string 1)}$
 do (C) for both p. $P_2 = \text{program 2 (string 2)}$
 else do (D) for both p.

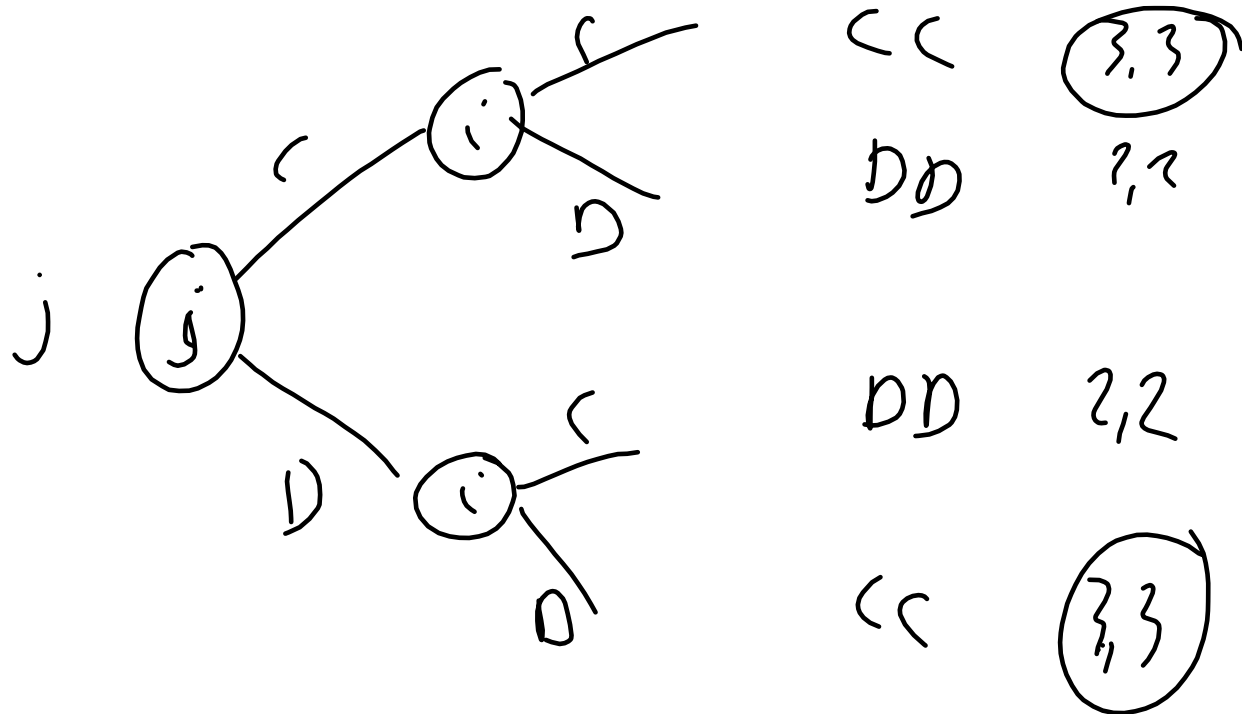
Let us look at PD strategies

Max Π_i and Π_j

	D	C
i	2,2	4,1
j	1,4	3,3

Let us view the possible payoffs Π using extensive form.





\Rightarrow C,C or D,D as rational strategies in PE.

