

# 282.1 : "Fighting AN Opponent of UNKNOWN STRENGTH"

		II	
		F	Y
I	FIGHT	-b, 1	1, 0
	YIELD	0, 1	0, 0

STATE: II IS Strong  
Prob =  $\alpha$

		II	
		F	Y
I	F	1, -1	1, 0
	Y	0, 1	0, 0

II IS WEAK  
Prob =  $1-\alpha$

## STRATS

I IS UNINFORMED :  $\delta_I = \{F, Y\}$   
 II IS INFORMED :  $\delta_{II} = \{FF, FY, YF, YY\}$   
↑↑  
S W

## II'S B.R. (FROM ORIGINAL MATRICES)

$\delta_{II}$  :  $\delta_{II}(\delta_I)$   
 F → FY  
 Y → FF

## I'S B.R. (FIND EXPECTED PAYOFFS)

		II			
		FF	FY	YF	YY
I	F	$1-2\alpha$	$1-2\alpha$	1	1
	Y	0	0	0	0

So if  $1-2\alpha > 0 \Leftrightarrow \alpha < 1/2 \Rightarrow F$  IS A DOMINANT STRATEGY!

### (3 CASES)

$\alpha < 1/2$

$\delta_I$  :  $\delta_{II}(\delta_I)$  :  $\delta_I(\delta_{II})$   
 F → FY → F ✓  
 Y → FF → F ✗

$\alpha > 1/2$

$\delta_I$  :  $\delta_{II}(\delta_I)$  :  $\delta_I(\delta_{II})$   
 F → FY → Y ✗  
 Y → FF → Y ✓

$\alpha = 1/2$

$\delta_I$  :  $\delta_{II}(\delta_I)$  :  $\delta_I(\delta_{II})$   
 F → FY → Y ✗  
 Y → FF → Y ✓

