12 Sep 07 Lecture 3

iterative deletion of dominated strategies Last time

Today

anapplication model of politics << players 77 2 candidates choose positions on political spectrum

12345678910

10% votes at each position Voters vote for closest candidate if tie, split 1 1

payoffs candidates aim to maximize Share of vote

2 dominates 1?

test does 2 dominate 1?

$$vs \mid u(1,1) = 50\% < u(2,1) = 40\%$$
 $vs \mid u(1,1) = 10\% < u(2,2) = 50\%$
 $vs \mid u(1,2) = 10\% < u(2,2) = 50\%$
 $vs \mid u(1,3) = 15\% < u(2,3) = 20\%$
 $vs \mid u(1,4) = 20\% < u(2,3) = 20\%$

vs4 u,(1,4)=20% < u,(2,4)=25%

Conclude 2 strictly dominates 1

9 strictly dominates 10 «same argument >>

What about 2: is it dominated by 3? X No

 $vs \mid u_1(2,1) = 90\% > u_1(3,1) = 85\% \times$

But if we delete strategies 1 & 10, then does 3 dominate 2?

$$u_{1}(2,3) = 20\% < u_{1}(3,3) = 50\%$$

$$v_s = v_s = v_s$$

$$v_{55}$$
 $u_{1}(2,5) = 30\% < u_{1}(3,5) = 35\% V$

2 and 9 are dominated, but they are dominated once we realize 18-10 won't be Chosen

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 $\frac{\times}{1} \frac{\times \times}{2} \frac{\times \times \times}{3} \frac{\times \times \times}{4} = -\frac{\times \times \times}{6} \frac{\times \times}{7} \frac{\times}{8} = 10$

Prediction: candidates around the center

Median Voter Theorem

Downs 1957 << political science 7</pre> 4 economics 77 Hotelling 1929

Missing

V evoters not evenly distributed

problem o many candidates / not voting

dolater . position not believed (Commit to policy)

ro primaries

Lo high dimensions

> < take in advanced poly sci courses >>

Different Approach

		<u>2</u>	
		l l	
	U	5,1	0,2
}	Μ	1,3	4,1
	R	4,2	2,3

Best Response

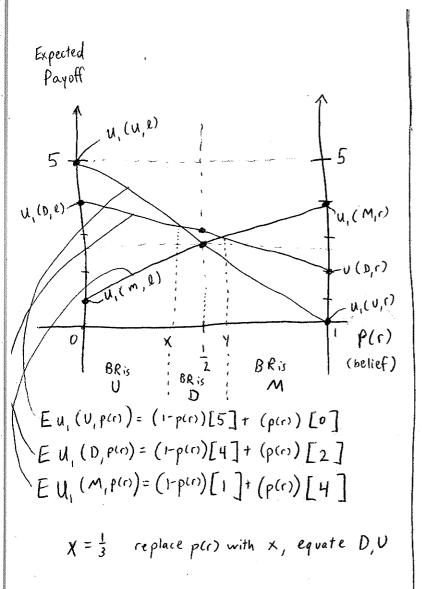
<< Nothing dominated. Solcan't stop at teaching dominated strategies. >

U does best against l

M does bestagainst r

Expected Payoff of U vs (\frac{1}{2}, \frac{1}{2}) = (\frac{1}{2})(5) + (\frac{1}{2})0 = 2\frac{1}{2} Expected Payoff of M vs $(\frac{1}{2}, \frac{1}{2}) = (\frac{1}{2})(4) + (\frac{1}{2}) = 2\frac{1}{2}$

Expected Payoff of D vs $(\frac{1}{2},\frac{1}{2})=(\frac{1}{2})4+(\frac{1}{2})2=3$



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