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Discussion 5

Midterm). I. "Pre requisites"
- A. Complete, transitive, indifference, strictly prefer
- B. Pareto efficient

II. 2×2 games
- A. Prisoner dilemma.
- B. Strict and weak dominance
- C. Battle of sexes, Stag Hunt, symmetric game, Hawk dove, match pennies
- D. Nash equilibrium (and strict)
- E. Best response

III. Large games
- A. Voting
- B. Cournot
- C. Second-price auction
- D. First-price auction

Weak Dominance)

A dominated

	C	D
A	1,	2,
B	1,	4,

A dominant

	C	D
A	1,	3,
B	1,	0,

Neither

	C	D
A	1,	3,
B	2,	0,

(Cournot game) See Discussion 4.

49.2) (Any action including vote for least preferred candidate)
dominated by (same action, minus least preferred vote)
↳ If least preferred win this is worse, otherwise makes no difference.

(Any action not including vote for favorite candidate)
dominated by (same action, plus favorite candidate vote).
↳ Same logic.

Why $(1, k-1)$ not weakly dominated? Check all possible dominating actions.

↳ If no vote for 1, this can cause 1 to lose.

↳ If no vote for $(k-1)$, candidate k can win.

↳ If vote any other j, again this can cause 1 to lose.

5.9.2) If $f=0$ (or small), standard calculation:

$(q_1^*, q_2^*) = (\frac{1}{3}(a-c), \frac{1}{3}(a-c))$.

If f too large $(q_1^*, q_2^*) = (0,0)$.

Interesting third case. Best response: $q_1 = \frac{a-c-q_2}{2}$.

Asymmetric equilibrium where only one firm produce: $q_1 = \frac{a-c}{2}$ and $q_2 = 0$.

Why would this happen? $q_2 = \frac{a-c-(\frac{a-c}{2})}{2} = \frac{a-c}{4}$ not profitable.

$\pi_2 = (a-q_1-q_2)q_2 - cq_2 - f < 0$ or

$f > \frac{(a-c)^2}{16}$.