Pot: $90,000

		Sandra	
		Split	Steal
David	Split	($45K , $45K) 4,	($0 , $90K) 2,
	Steal	($90K , $0) 3,	($0 , $0) 1

Suppose that David values fairness first and then money and is benevolent towards Sandra:

For David, given these preferences, SPLIT strictly dominates STEAL

David's preferences:	**David's utility:**	**{1,2,3,4}**
best	($45K, $45K)	4
	($90, $0)	3
	($0, $90)	2
worst	($0, $0)	1

For Sandra STEAL weakly dominates SPLIT

		Sandra	
		Split	Steal
David	Split	45k, 45k 4, 2	0, 90k 2 3
	Steal	90k, 0 3 1	0, 0 1 1

What if Sandra is selfish and greedy?

Utility: {1,2,3}

best	($0, $90k)	3
	($45k, $45k)	2
worst	($90k, $0), ($0, $0)	1

Read Definitions 2.2.1 and 2.2.2 in textbook (Chapter 2)

Player 2

Player 1

	E	F	G
A	4 …	4 …	1 …
B	4 …	3 …	2 …
C	4 …	4 …	1 …
D	5 …	4 …	3 …

FOR PLAYER 1

Strict dominance:

For Player 1 D strictly dominates B

Weak dominance:

D weakly dominates A

D " " C

Equivalence:

A and C are equivalent

Read Definitions 2.2.1 and 2.2.2 in textbook (Chapter 2)

		Player 2		
		E	*F*	*G*
Player 1	*A*	4 ...	4 ...	3 ...
	B	4 ...	3 ...	2 ...
	C	4 ...	4 ...	3 ...
	D	2 ...	4 ...	3 ...

changes from previous slide

A strategy is strictly dominant if it strictly dominates every other strategy.

A strategy x, which is not strictly dominant, is weakly dominant if, when compared to any other strategy y, either x dominates (weakly or strictly) y or x is equivalent to y

C is a weakly dominant strategy

C weakly dominates D

C " " B

C is equivalent to A

Second-price auction:

the highest bidder wins and pays the second highest bid

Bidder	1	2	3	4	5	6	7
Bid	\$10	\$12	\$8	\$20	\$22	\$18	\$15

winner

pays \$20

Bidder	1	2	3	4	5	6	7
Bid	\$10	\$12	~~\$22~~	\$20	\$22	\$18	\$22

winner

pays \$22

Second highest bid

In case of ties the rules have to specify how the winner is picked (first to submit his bid? first in alphabetical order? coin toss? …)

The case of TWO bidders:

bidder i $\quad v_i$ = value of the object to player i

Preferences of player 1

Outcome: (i, p)

i: winner

p: price paid by winner

$$\begin{cases} \bullet\ (2,p) \succ_1 (1,p') \text{ if } p' > v_1 \quad \forall p, p' \\ \bullet\ (2,p) \sim_1 (1,v_1) \quad \forall p \\ \bullet\ (1,p) \succ_1 (2,p') \text{ if } p < v_1 \quad \forall p, p' \\ \bullet\ (1,p) \succ_1 (1,p') \text{ if } p < p' \quad \forall p, p' \end{cases}$$

$$U_1(i,p) = \begin{cases} 0 & \text{if } p > v_1 \quad i = 2 \\ v_1 - p & \text{if } p \le v_1, \quad i = 1 \end{cases}$$

For player 1 bidding v_1 is a weakly dominant strategy