

Naive

Player	Items Allocated To Player	Worth	Side payments	Total
1	A	10,000	- 4,000	6,000
2	D	2,000	+ 4,000	6,000
3	B&C	6,000		6,000

Sum: 18,000

$\frac{1}{3}$

6,000

STEINHAUS

Player	Items Allocated To Player	Worth	Side payments	Total
1	A	10,000	-3,545	6,455
2	D	2,000	+2,855	4,855
3	B&C	6,000	+689	6,689

Sum: 18,000

Imagined disagreement point:

Each player gets $\frac{1}{3}$ of each item. (at players' valuation)

Player	Disagreement Payoff	Share of Excess	Total
1	4,433	2,022	6,455
2	2,833	2,022	4,855
3	4,667	2,022	6,689

Sum: 11,933
Pareto opt. sum: 18,000

} → excess: 6,067

AUCTION

(High bidder wins at second highest bid)

Player	Items Allocated To Player	Worth	Side payments	Total
1	A	10,000	-3,167	6,833
2	D	2,000	+2,833	4,833
3	B&C	6,000	+333	6,333

Player	Payment at Auction	Share of Receipts	Side Payment
1	7,000	3,833	-3,167
2	1,000	3,833	+2,833
3	3,500	3,833	+333

Sum: 11,500

COMPARISON

	NAIVE		STEINHAUS		AUCTION	
	side payments	total	side payments	total	side payments	total
1	- 4,000	6,000	- 3,545	6,455	- 3,167	6,833
2	+ 4,000	6,000	+ 2,855	4,855	+ 2,833	4,833
3	0	6,000	+ 689	6,689	+ 333	6,333

All procedures allocate item A to 1, item D to 2, item B & C to 3

Mis-Representation - What Can Happen?

	<u>#1</u>		<u>#2</u>		<u>#1</u>		<u>#2</u>	
Valuation	90		100		120		100	
Initial Fair Share	49.50	+	50	= 99.50	60	+	50	= 110
Item Received	–		E		E		–	
Value Received	0		100		120		0	
Initial Excess (Deficit)	–49.50		50		60		–50	
Share of Surplus	.25		.25		5		5	
Adjusted Fair Share = Initial Fair Share + Share of Surplus	49.75		50.25		65		55	
Final Settlement	49.75		E–49.75		E–55		55	

- E has value \$90 to #1. By distorting #1 gets $\$90 - \$55 = \$45$ in *actual* value to her in place of \$49.75.
- E has value \$100 to #2. Distortion by #1 yields \$55 to #2 in place of E – $\$49.75 \sim \$100 - \$49.75 = \50.25

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15.067 Competitive Decision-Making and Negotiation
Spring 2011

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