

Prob of allocation

$P \Rightarrow$

		sig 1	sig 2	sig 3
val 1	1	$P_{0,0}$		
val 2	2			
val 3	3			

Payments

$X \Rightarrow$

		sig 1	sig 2	sig 3
val 1	1	$X_{0,0}$		$X_{1,2}$
val 2	2			
val 3	3	$X_{2,1}$		$X_{2,2}$

Prior

$q \Rightarrow$

		sig 1	sig 2	sig 3
val 1	1	$q_{0,0}$		
val 2	2			
val 3	3			$q_{2,2}$

Constraints

Ex interim IR (Expected outcome ≥ 0)

Expected Value_i is:

$$\sum_j \text{Val}[i] \cdot P_{ij} \cdot q[ij | i=i]$$

Expected Payment

$$\sum_j X_{ij} \cdot q[ij | i=i]$$

Ex post : (for any $i =$ valuation/signal)

$$\text{Val}[i] \cdot P_{ij} - X_{ij} \geq 0$$

IC

BNE IE (declaring true val best choice in expectation)

Situation where he/she tells truth i vs i'

$$\sum_j q[ij | i=i] (\text{Val}[i] \cdot P_{ij} - X_{ij}) \geq \sum_j q[ij | i=i] (\text{Val}[i'] \cdot P_{i'j} - X_{i'j})$$

Objective (max rev)

$$\sum_{i,j} X_{ij} \cdot q_{ij}$$