

MIN-MAX REGRET CRITERION

IN THIS CASE, INSTEAD OF THE COST OR PROFIT, REGRET IS USED AS THE CRITERION. REGRET IS DEFINED AS THE DIFFERENCE BETWEEN WHAT YOU COULD HAVE ACHIEVED (FOR A GIVEN θ) AND WHAT YOU WILL ACHIEVE (BY TAKING A PARTICULAR ACTION).

SO, REGRET R_{ij} CAN BE DEFINED AS FOLLOWS:

$$R_{ij} = \begin{cases} \max_{a_i} \{O_{ij}\} - O_{ij} & \text{if } O_{ij} \text{ is profit} \\ O_{ij} - \min_{a_i} \{O_{ij}\} & \text{if } O_{ij} \text{ is cost} \end{cases}$$

FOR THE EXAMPLE THE REGRET MATRIX IS:

	θ_1	θ_2	θ_3	θ_4	$\max_{\theta_i} \{ \}$
a_1	0	3	10	10	10
a_2	6	0	0	8	8 ← MINIMUM VALUE
a_3	19	11	4	6	19
a_4	28	15	11	0	28

DO a_2 .

IN THIS CRITERION, ALWAYS THE "REGRET" IS USED. HENCE, THE ONLY MEANINGFUL CHOICE CAN EMERGE FROM MIN-MAX.