Pareto dominant

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Classification	msc 91A99
Defines	strongly Pareto optimal
Defines	weakly Pareto optimal
Defines	strongly Pareto dominates
Defines	strongly Pareto dominant
Defines	Pareto dominates
Defines	Pareto dominant
Defines	weakly Pareto dominates
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An outcome s^* *strongly Pareto dominates* s' if:

$$\forall i \leq n \left[u_i(s^*) > u_i(s')\right]$$

An outcome s^* *weakly Pareto dominates* s' if:

$$\forall i \leq n \left[u_i(s^*) \geq u_i(s')\right]$$

s^* is *strongly Pareto optimal* if whenever s' weakly Pareto dominates s^*, $\forall i \leq n \left[u_i(s^*) = u_i(s')\right]$. That is, there is no strategy which provides at least as large a payoff to each player and a larger one to at least one. s^* is *weakly Pareto optimal* if there is no s' such that s' strongly Pareto dominates s^*.