EX12

Ido Kahana

DEC 2021

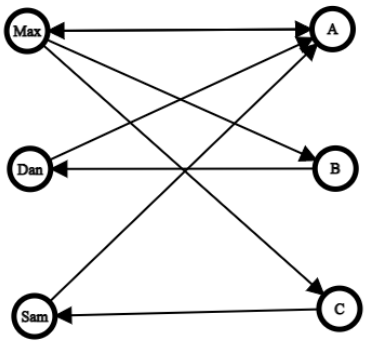
1 Q3

Definition 1.1 — A Weak appellant coalition - is a group of participants who can retire and make a substitution that is better for at least one of the group members

Definition 1.2 — A strong core allocation - Is an allocation in which there is no weak appellant coalition

Theorem 1.3 — *Any Pareto effective algorithm is not always return a strong core allocation*

Proof. 3 people, Max Dan And Sam.
3 Houses A,B and C.
Max House is A.
Dan House is B.
Sam House is C.
Sam and Dan prefers House A.
Max is indifferent to House A,B,C.



There is only 2 Pareto Effective Results $(Max, Dan, Sam) = (B, A, C)$ and $(Max, Dan, Sam) = (C, B, A)$, since the algorithm is Pareto Effective it must pick one of them.

If the algorithm pick $(Max, Dan, Sam) = (B, A, C)$ then Max And Sam can retire and the only Pareto effective result for this two is $(Max, Sam) = (C, A)$ So the algorithm will pick it, and it is definitely better for Sam and the same for Max.

If the algorithm pick $(Max, Dan, Sam) = (C, B, A)$ then Max And Dan can retire and the only Pareto effective result for this two is $(Max, Dan) = (B, A)$ So the algorithm will pick it, and it is definitely better for Dan and the same for Max.

□

Theorem 1.4 — *Saban-Storman is not always return A strong core allocation*

Proof. Saban-Storman Is Pareto Effective, therfore the therom is correct. □