Microeconomics II (PhD)
Tutorial 2, May 8

akleiner@uni-bonn.de

Part B

Note: The second tutorial will take place on Wednesday, May 8!

3. Show: In an assignment game, the set of stable outcomes equals the core.

4. Let (P, Q, α) be an assignment game. Suppose that $|P| \geq |Q|$ and $\alpha_{ij} > 0$ for all $i \in P,\ j \in Q$
O.

   Show: There exists a stable payoff vector (u, v) such that $u_i = 0$ for all buyers $i \in P$ if and only if there is an optimal assignment x such that for all $i \in P$ and all $j \in Q$, $x_{ij} = 1$ implies $\alpha_{ij} \geq \alpha_{kj}$ for all $k \in P$.

5. There is a set of n men, $M = \{m_1, ..., m_n\}$, and a set of p women, $W = \{w_1, ..., w_p\}$. If man m_i and woman w_j are paired, they create a monetary value of $v(m_i, w_j)$, single individuals do not create value. Utility is given by the monetary value an agent realizes.

   (a) Suppose that utility is transferable, $n = p = 2$ and match values are given as follows:

	w_1	w_2
m_1	10	18
m_2	1	10

   Compute the core of the game and draw the set of payoffs for men that are part of core allocations.

   (b) Now one additional man arrives, corresponding match values are given as follows:

	w_1	w_2
m_1	10	18
m_2	1	10
m_3	3	5

   Determine the payoff vector in the core that men prefer the least. Compare to the payoff vector men prefer the least in part (a).

   (c) Consider the general setting with n men and p women and arbitrary match values. Suppose that utility is not transferable across agents and each men that is matched receives a share $s \in (0, 1)$ of the match value, each woman receives a share $1 - s$. Assume that match values are such that individuals have strict preferences. Show that there is a unique stable matching.