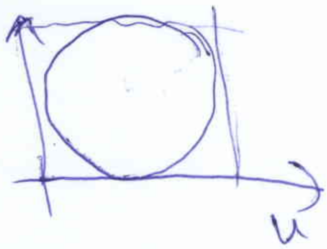
Теория на игрите - 12.12.2013

домашно - до сега писаното (на телефона)

да се сметне производната g



$$(S,(u^*,v^*)) \to (\bar u,\bar v)$$

1. $(\bar u,\bar v)\in S$
2. $\bar u \ge u^*$, $\bar v \ge v^*$
3. не същ. точка $(\tilde u,\tilde v)\in S$, $\tilde u > u^*$, $\tilde v > v^*$

   $(\tilde u,\tilde v) \ge (\bar u,\bar v)$ $\tilde u \ge \bar u$, $\tilde v \ge \bar v$
4. $L: R^2 \to R^2$

   $L(u,v) = (u',v')$

   $(L(S), L(u^*,v^*)) \to L(\bar u,\bar v)$
5. $T \subset S$ $(S,(u^*,v^*)) \to (\bar u,\bar v)\in T$

   $(\cancel{T,S}(T,(u^*,v^*))) \to (\bar u,\bar v)$
6. $(u,v)\in S \to (v,u)\in S$ $(S,(u^*,v^*)) \to (\bar u,\bar v)$ $\bar u = \bar v$

единствената точка, която удовлетворява тези 6 ...

$g(u,v) \to max$

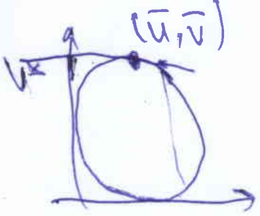
$(u-u^*)(v-v^*)$

$(u,v)\in S$

$u \ge u^*$

$v \ge v^*$

като предполагаме, че има $(\tilde u,\tilde v)$, $\tilde u > u^*$, $\tilde v > v^*$



(прокарване успоредна права)

имаме k-играчи $1,\dots,k$

стратегии: $J^1=\{1,2,\dots,S_1\}$ $\quad \Pi_i(J_1,J_2,\dots,J_k)$ $\quad i=1\dots k$

$J^2=\{1,2,\dots,S_2\}$

$\vdots$

$J^k=\{1,\dots,S_k\}$

$x^1 = \{1\in R^{S_1}, x_i^j\ge 0, \sum_{j=1}^{S_1} x_1^j = 1\}$ - вектор

$X_k = \{x_k \in R^{S_k}, x_k^j \geq 0, \sum_{j=1}^{S_k} x_k^j = 1\}$

$x = (x_1, x_2 \dots x_k)$, $x_1 \in X_1$, $x_2 \in X_2$, $x_k \in X_k$

$\overline{x_1}$ – вектора x, но без x_1 като компонента

$(\overline{x_1}, x_1) = x$

$f_1(x) = \sum_{j_1=1}^{S_1} \sum_{j_2=1}^{S_2} \dots \sum_{j_k=1}^{S_k} x_1^{j_1} x_2^{j_2} \dots x_k^{j_k} \pi(j_1, j_2 \dots j_k)$

$f_1(x) = \sum_{j_1=1}^{S_1} x_1^{j_1} f_1(\overline{x_1}, j_1)$ $\quad x^* = (x_1^*, x_2^*, x_3^*, \dots x_k^*)$

$f_1(\overline{x}_1^*, x_1) \leq f_1(x^*)$, $1 = 1 \dots k$

$S \subset R^k$

$u^* = (u_1^* \, u_2^* \dots u_k^*)$

$(S, u^*) \to \overline{u} \in R^k$

1. $\overline{u} \in S$
2. $\overline{u} \geq u^*$
3. $\tilde{u} \in S$ $\tilde{u} \geq \overline{u}$
4. $L: R^k \to R$
   $(L(S), L(u^*)) \to L(\overline{u})$
5. $T \subset S$, $(S, u^*) \to \overline{u} \in T$

$(S, (u_1^*, u_i^*, u_i, \dots u_k))$ $\quad (T, u^*) \to \overline{u}$

$(\overline{v}_1, \overline{v}_1 \dots \overline{v}_k)$

6. $u \in S, \overline{v}$ $\quad \overline{u}(u) \in S$

$g(u) = \prod_{i=1}^{k} (u_i - u_i^*)$

$\begin{cases} g(u) \to \max \\ u \in S \\ u \geq u^* \end{cases}$

$u' = L(u)$ $\quad u_i' = \alpha_i u_i + \beta_i, \alpha_i > 0, i = 1 \dots k$

$g'(u') = \prod_{j=1}^{k} (u_j' - u_j'^*) = \alpha_1 \alpha_2 \dots \alpha_k g(u)$