THE ANALYSIS OF STABILITY OF GRADIENT ALGORITHM FOR PROBLEMS OF CONVEX DISCRETE OPTIMIZATION

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It is shown in the research that gradient algorithm is stable at curvature perturbation of admissible domain for the problems of convex discrete optimization in the terms of guaranteed estimations.

Let $Z_+^n(R_+^n)$ be the set of n-dimensional not negative integer (real) vectors, $P \subseteq Z_+^n$ – ordinal convex set [1].

It is considered the following problem A of convex discrete optimization: To find

$$\max\{f(x)|x = (x_1, \ldots, x_n) \in P \subseteq Z_p^n\},$$

where $f(x) \in \Re_p(Z_+^n)$ – not decreasing function, $\Re_p(Z_+^n)$ – class p-coordinate convex functions.

Designate curvature sets P [1] as $\theta(p)$. As usual [2], if guaranteed estimations of perturbation problem are not retrogress, then gradient algorithm is called stable.

Theorem. *Gradient algorithm is stable at "small"curvature perturbations of the set P for the problem A.*

Remark. *This research develops previously obtained results [2].*

REFERENCES

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