USAGE OF FUZZY LOGIC IN THE DESIGN OF NETWORKS

Andrey Valyuk

Department of Information Technologies, State Economic University, Minsk, Belarus
valuk@bseu.minsk.by

The kernel of the problem is reduced to the following: there is a set of nodes with specified lengths between them and there are defined information flows passing between specific nodes. Capacity of lines of communication is defined. It is required to design with minimum costs of construction a rational structure of network which serve defined information flows. There are a number of algorithms, which solve this task [1, 2, 3]. These algorithms are fundamentally exhaustive. In the papers [2, 3] was proposed to use a method of branches and borders. This method allows to solve different tasks which are similar to the described task of optimization. It is necessary to be mentioned that results of this method are not enough adequate to the real situation. It can be explain by the fact that information network is not static and discrete. All axes of network (information flows, capacity of nodes, costs of communication lines) are changed in time. That is why stated method gives approximate results, which does not meet requirements of adequacy to the real situation. The main idea of this paper is to use some elements of fuzzy logic in the solution of the task described above. This will allow to make an algorithm which will meet real conditions. For that goal, all values of information flows must be present as fuzzy values. These values allows to describe the scope of possible changes and medium value of flow. Such algorithm modification permit during network design to take into consideration changes of networks' axes as a result of irregularly priming of network during curtain period of time. This also allow to consider all other changes of axes. In ones part it increase trustworthiness of designed network and it's accordance to real conditions.

References

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