Discussion on Spatial Structurized System In Automatic Generalization of Map

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Abstract: In the field of cartography, automatic generalization of map is still a difficult problem. Map plotting itself shows a process of feature extraction to the realistic world, and map generalization is a farther process of removing some little features and keeping high-level features. Automatic generalization of map needs to face a great amount of complicated spatial objects and their spatial relations, so at present a lot of works are mainly concentrated on researches on arithmetic operators and methods of generalization under some specific conditions. But they can only solve some partial problems. How to consider the application of generalized factor and operators at an angle of total factor map data? Which relative objects should be put in generalized scope when a map object is simplified? How to guarantee good results of map generalization? … It will be a solution to get the connections among various map objects, which belong to the same or different map factors, by means of establishing an integrated, scientific and exercisable spatial structurized system. To the different factors such as river system, relief, vegetation, residential area, traffic and so on, they possess their own special structural features which include hierarchical, dendritic, netted, topological and the other structure. At the same time, there are yet more complicated structural relations among the different map factors. These structural relations can provide much necessary information on generalized objects and selectable methods while generalizing. This paper will think of the demand that the automatic generalization of map asks for spatial object and spatial relation, and discuss the possibilities and existing technical difficulties of some methods of establishing spatial structured system based on total factor spatial objects. It will provide a basic frame of solving the problem of automatization of cartographical generalization.

Keywords: automatic generalization of map   spatial structural system generalized factor   total factor map data