Application of GeoObject-Graphic-Pattern (TUPU) in Cartographic Generalization

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Cartographic generalization has long been the key and most difficult problem in Cartography and GIS realm. In recent years, the author found that graphic distributive pattern of geo-objects is essential and inevitable to generalization, which can't get satisfactory results through such methods as mathematical models and knowledge inference. This paper use a completely new method, i.e., the spatial-tempo pattern series, associated with mathematical & intelligent tools, for cartographic generalization. These spatial-tempo pattern series include those in different regions, different periods, different scale, as well as different subjects. For each pattern series, we not only draw graph of them, but also generalize their spatial-tempo features, and then make strict descriptive index in order that users can understand the essence of geo-objects' spatial-tempo pattern. In cartographic generalization process, we firstly recognize, from map or GIS database, the pattern of these objects, and then select the templates accordingly, i.e., the relevant graphic pattern of each object; finally, we can combine geo-graphic pattern with mathematical model and knowledge inference tools. This method can also be used in geographic analysis.