In geographic information systems, analysis, interpretation, and transformation of spatial datasets play a central role. In recent years geospatial information models like virtual 3D city models or cadastre models like CityGML, GeoSciML, German cadastre ALKIS, UK OS MasterMap, etc., are increasingly specified on the base of the General Feature Model of the ISO 191xx standard series. Within that framework, transformations on standardized structures with well-defined semantics for geoobjects can be executed. Object-oriented modeling concepts allow for the specification of complex structures with aggregation and generalization / specialization hierarchies. Thus, the analysis, interpretation, and transformation of spatial datasets have to cope with this complexity. Within this paper, we propose a framework which realizes a data-driven transformation system on complex object structures represented by attributed typed graphs, which can be processed using graph transformation. A transformation language is proposed referring to the notion of geoobjects and their spatial entities. It allows recognizing complex configurations of spatial objects by using subgraph isomorphism. Furthermore the
mapping of transformation programs to graph transformation rules for a specific graph transformation system, AGG, and a prototypical implementation is explained. The proposed concept is especially useful for recognition, interpretation, and generalization tasks. The latter is demonstrated for an example on land parcel generalization.

Stichworte: locenter, Semantic modeling, Spatial modeling and algorithms

Herausgeber: Kohlhofer; Franzen

Kongress- / Buchtitel: Proceedings of the Joint Scientific Conference of the German Society for Photogrammetry, Remote Sensing & Geoinformation (DGPF), the Austrian Society for Surveying (OVG), and the Swiss Society for Photogrammetry and Remote Sensing (SGPF), Vienna 2010

Verlag / Institution: Deutsche Gesellschaft für Photogrammetrie, Fernerkundung und Geoinformation e.V.

Jahr: 2010

Occurences: Einrichtungen > Fakultäten > Ingenieurfakultät Bau Geo Umwelt > Lehrstühle > Leonhard Obermeyer Center > Lehrstuhl für Geoinformatik (Prof. Kolbe) > 2010

entries: