Street Networks Generalizing and Labelling

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Abstract

This paper presents a methodology to extract a new hierarchy for effectively generalize and label street features in intermediate multi scale street networks. The hierarchy uses two main parameters as criteria for ordering the street features; their centrality measures, i.e., betweenness, reach, straightness and closeness, and their functional classes attribute. The measures are integrated using fuzzy-AHP to yield proper coefficients in the hierarchy creation process. The hierarchy is applied for the thinning process to reduce the complexity of the network. Later, the proposed hierarchy is implemented as a priority value to label street features in intermediate scales.

Weight of the street feature = normalized bet. value of the feature × 0.5223 + normalized reach value of the feature × 0.3252 + normalized str. value of the feature × 0.1129 + normalized clos. value of the feature × 0.0396

(1)

Part of the sample area at 1:64K before thinning

Part of the sample area at 1:64K after thinning using functional class hierarchy

Part of the sample area at 1:64K after thinning process using the proposed hierarchy

Part of the sample area after the thinning process is applied using the proposed hierarchy at scale 1:8K

Part of the sample area after the thinning process is applied using the proposed hierarchy at scale 1:16K

Part of the sample area after the thinning process is applied using the proposed hierarchy at scale 1:32K

Part of the sample area after the thinning process is applied using the proposed hierarchy at scale 1:64K

labelled areas using the proposed hierarchy as a priority value at scale a)1:8K and b)1:16K

(a) (b)