Comparison of logical binary step based and metric properties in flow networks:
Case Helsinki

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Abstract

Recent changes in the urban structure of Helsinki metropolitan area indicate that the agglomeration is going through a transformation process different from the one in modernist era. Theories for on-going change have been suggested in the field of social sciences by authors like Manuel Castells and Saskia Sassen. Recently, the origin of this networking phenomenon is advanced, and is to be found in human mobility (Nigel Thrift) and in the way "unbundled" infrastructure networks are reassembled (Stephen Graham and Simon Marvin). Still, tools for predicting and analyzing this phenomenon of networking conurbations are unavailable. Theories behind Space Syntax may be of great help in making these ideas operational.

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Previous work by the author (Joutsiniemi 2002) suggests that with an application of the axial map analysis method some valuable information about functional clusters of a metropolitan area may be derived. A simple change in the method concerns the underlying network. Space Syntax method for evaluating the complex structure formed from lines of sight is used for movement-based division of a street network. Since the applied method seems to reveal different accessibility levels and neighborhoods some further comparison is needed.

Binary step methods used in Space Syntax have a strong connection to the recent theories of so called "small world" networks. These connections serve as a bridge between binary relations and the metric world. The objective of this paper is to compare the results of a binary step based method of accessibility with more time consuming calculations of different metric properties of a network. The aim is to find out whether findings in clustering formation are comparable with traditional network analysis based on the Dijkstra algorithm or whether they lean on different intellectual backgrounds.