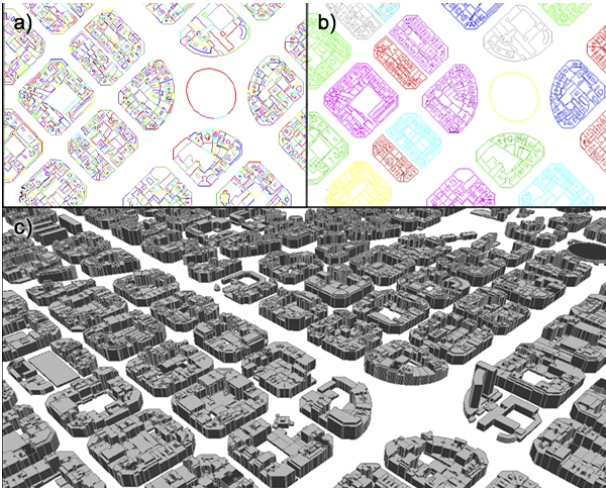


Structuring Urban Data

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Geometric city modeling is an open problem without standard solutions. Within this problem, there appear several sub-problems that must be faced, like the accurate modeling of streets, buildings and other architectonic structures. One important source of geographical information is (measured) cadastral urban data. However, this information is not always well structured, and sometimes it is even simply corrupted GIS data. In this paper we present a robust and generic solution for the generation of block and building layouts based on a repairing process applied when this data is not correct. Our input data is a top projection map of

a city which usually has been created by a mixture of photogrammetric restitution and, in a second stage, hand-drawn using any GIS application. Moreover, these maps are under continuous modifications, like in the case of public administrations. This process sometimes results in the introduction of mistakes and anomalies, which are hard to correct without the appropriate tools. Our solution is based on a novel semiautomatic 2D restructuring algorithm, which uniformly corrects errors and ambiguities that are commonly present in corrupted cadastral data. This problem is complex because it is necessary to identify not just simple elements from the input file, but also their connectivity and structure in the real world. The output of our algorithm is the urban data restructured into a hierarchy of blocks and buildings, from which we can get a realistic 3D model by extruding each building using the floor number for each building within the cadastral data.