

Urban Grammar

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A continuation of the AMUSE project which deals with visualizing large urban environments. In Urban Grammar, a 2D map of a city is parsed to detect roads, land boundaries, and building outlines. The parsing creates a unique grammar which describes the city. Once the information is obtained, we can then derive new cities in the style of the original using the grammar. This process includes how to obtain the boundary data, how parsing is conducted, and how derivations are done. It will also be shown how cities may be edited so that a city planner may use this tool for his work. Issues involved in editing are grammar simplification, region similarity estimation, and n-gon to m-gon mapping. Grammar simplification greatly helps reduce the number of computations needed during derivation. Similarity estimation is an essential tool needed in derivations and most phases of editing. N-gon mapping is used to project texture coordinates from a region in the original city to a new, possibly deformed, region in the edited city.