

# The Growth Models for Science of Cities

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# Overview

- ▶ Zipf's law and its formation
  - ▶ Zipf's law without fine-tuning: static mesoscopic
  - ▶ Stationary distribution of dynamical processes for the sizes of groups of individuals
    - ▶ mesoscopic: cities
    - ▶ microscopic: individuals
- ▶ Gibrat's law and Taylor's law

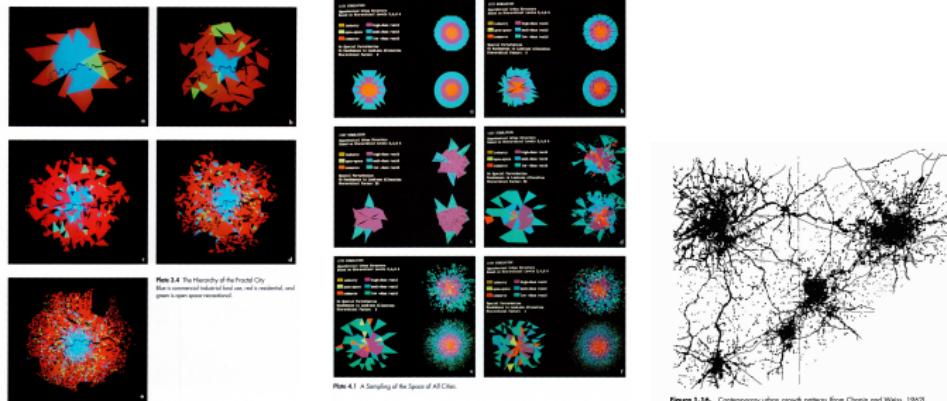


Figure: Aspects of fractal cities

# Fractal Cities

- ▶ M. Batty and P. Longley, Fractal Cities: A Geometry of Form and Function (Academic, San Diego/London, 1994).
- ▶ Cellular automata have been used to model spatial structure of urban land use over time: Environ. Plan. A 25, 1175 (1993).
- ▶ The correlated percolation model