SPATIAL SIMULATION FOR THE SOCIAL SCIENCES

S4

Modus

Modelling Urban Space

About the emergence of complex forms and multi-scale patterns

Organised by P. Frankhauser, C. Tannier and I. Thomas

Paris, April 27, 2006

MODUS = MODeling Urban Space

what scale ?

- scale of buildings
- scale of town sections
- scale of agglomerations
- megalopolis
- urban systems

what topic ?

- use (social housing, individual housing …)
- architecture
- urban patterns
- land-use
- urban environment, quality of life

MODUS = MODeling Urban Space

this first workshop focuses on …

multiscale approaches

more "mezoscopic scales"

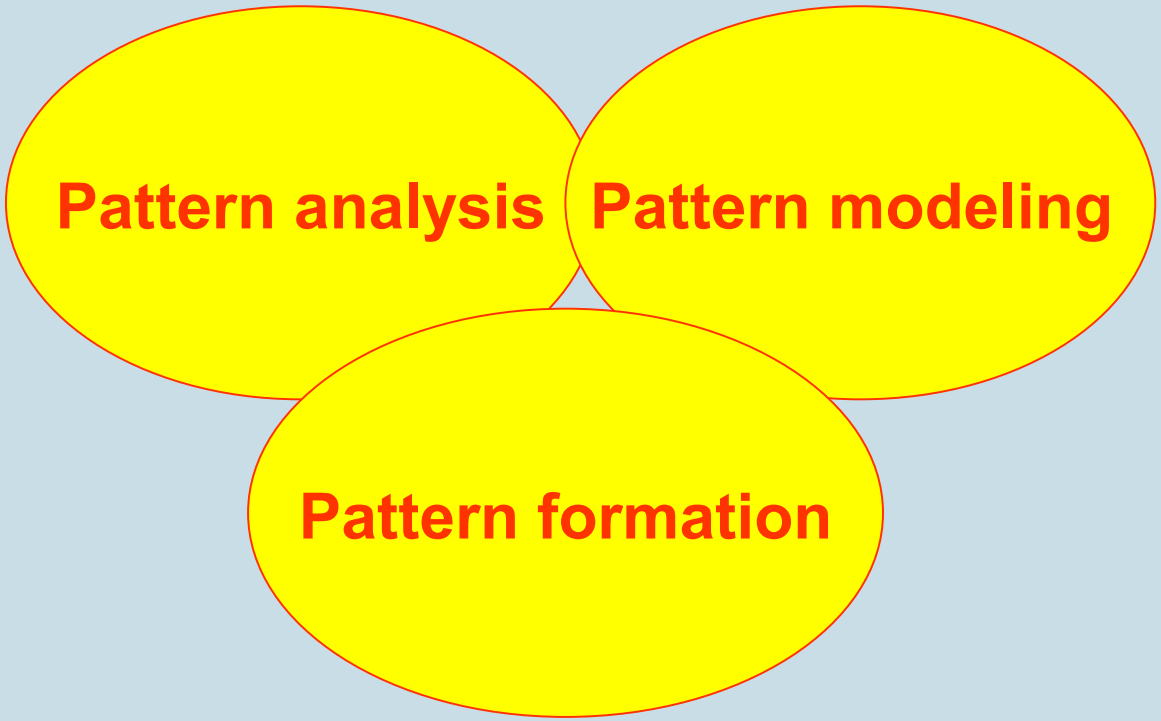
- scale of town sections
- scale of agglomerations
- megalopolis
- urban systems

use (social housing, individual housing …)

patterns analysis and pattern formation

- urban patterns
- land-use
- urban environment, quality of life

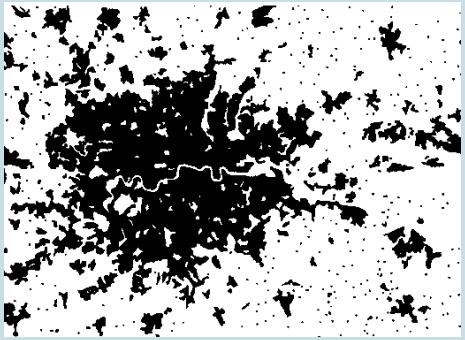
three complementary approaches are considered



pattern analysis

how to measure morphology of urban patterns ?

structural approach



a descriptive approach

however, if characteristic morphology: may we distinguish different types of urban patterns?

IT

measuring concept for complex multi-scale forms

pattern modeling

reference models for understanding and illustrating spatial organization

what are the consequences for understanding the urban patterns' structure ?

CT,PF

urban pattern formation

morphological approach

"space is actor"

usually: aggregated level

SprawlSimCASA

PL

GC

DP

socio-economic approach

individuals or groups are actors

usual micro-level, but macro-level possible

macroscopic dynamics of pattern formation

tends to be a descriptive approach

link ?

emergence of socio-configurations (initially not patterns)

explicative approach

pattern analysis

pattern modeling

multiscale approach by means of fractal geometry

if characteristic morphology: under what conditions do such patterns emerge ?

what are the consequences for understanding the urban patterns' structure ?

urbanization and fractal dimension

delimiting urbanized areas: an approach by fractal modeling

I. Thomas:
Fractal dimensions and periurban complexities : the case of Belgium

C. Tannier, P. Frankhauser:
About the existence or non-existence of an urban envelope in the framework of a multi-scale approach

urban pattern formation

morphological approach	socio-economic approach
computer simulation modeling – artificial intelligence – GIS	mathematical modeling (economic approach)

P. Longley:
Agent-Based Modelling and Simulation using Repast: A Gallery of GIS Applications from CASA

G. Caruso:
Emergence of fragmented patterns: a cellular automata modelling of suburban area, including the individual preferences for green and social amenities

D. Peeters:
Optimal economic behaviour in a fractal city versus a non fractal (thünian) city

Program

10h - *P. Frankhauser:* Introduction of the workshop

10h15 - *I. Thomas:* Fractal dimensions and periurban complexities : the case of Belgium

11h15 - *C. Tannier and P. Frankhauser:* About the existence or non-existence of an urban envelope in the framework of a multi-scale approach

12h15-13h30: lunch

13h30 - *P. Longley:* Agent-Based Modelling and Simulation using Repast: A Gallery of GIS Applications from CASA

14h30 - *G. Caruso:* Emergence of fragmented patterns: a cellular automata modelling of suburban area, including the individual preferences for green and social amenities

15h30 - *D. Peeters:* Optimal economic behaviour in a fractal city versus a non fractal (thünian) city

16h30 - Open debate and conclusion of the workshop