Two Demos: Typification, Continuous Generalization

Monika Sester
Institute for Cartography and Geoinformatics
Hannover University

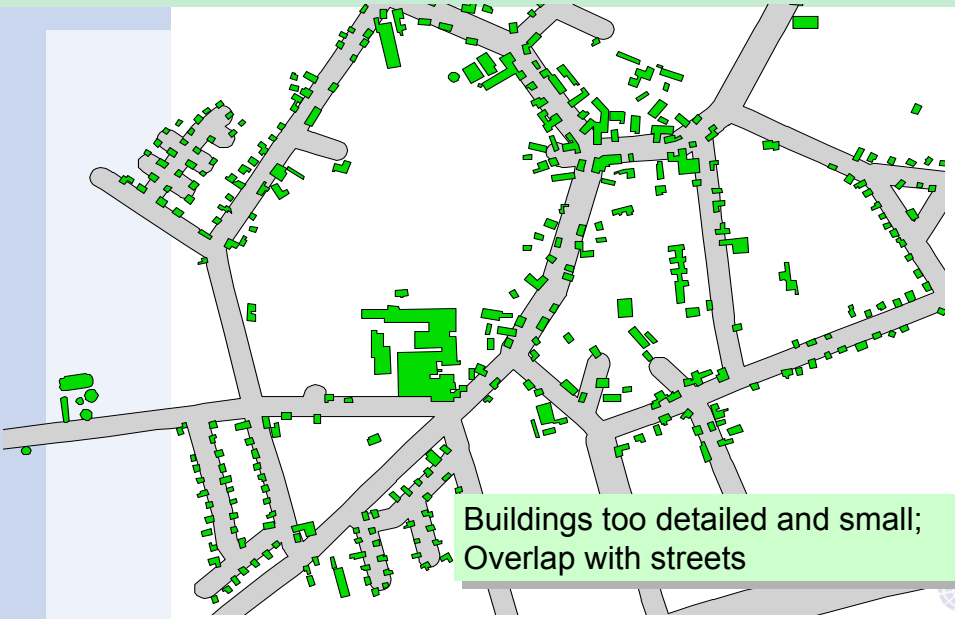
Demos

- Typification
  - Of buildings for small scale representations
  - Based on Kohonen Feature Maps
- Continuous Generalization
  - Based on coding scheme
  - Incremental refinement of data
    - Simplification of lines (Douglas Peuker)
    - Simplification of buildings

Process for typification

- Given a target scale and reduction rate, select *nz* buildings randomly; larger buildings are slightly prioritized. The buildings are reduced to their centroids.
- processing of the centroids using Kohonen feature maps leads to re-arranged building centroids.
- Assign building symbol: look for nearest object in the vicinity of the re-arranged object; Depending on its size:
  - Present it with original shape
  - or present it as a square symbol with the orientation of the original building.
- Displace new buildings and streets with displacement algorithm PUSH
- If required number of objects could not be placed in a mesh, a smaller reduction rate is chosen and the whole process is repeated.

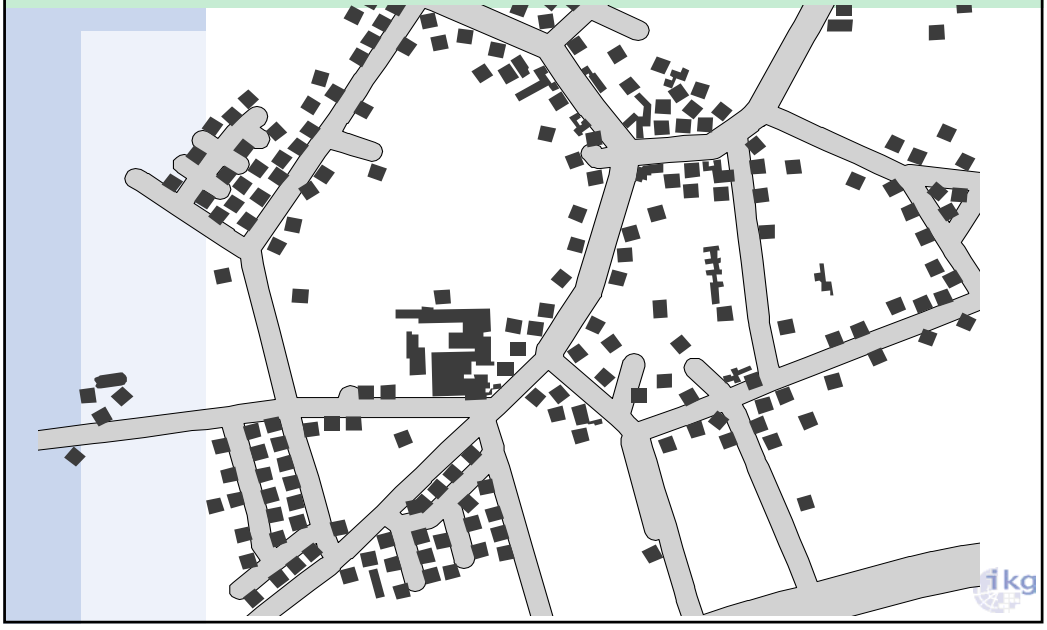
Streets and cadastral buildings: goal 1:50.000



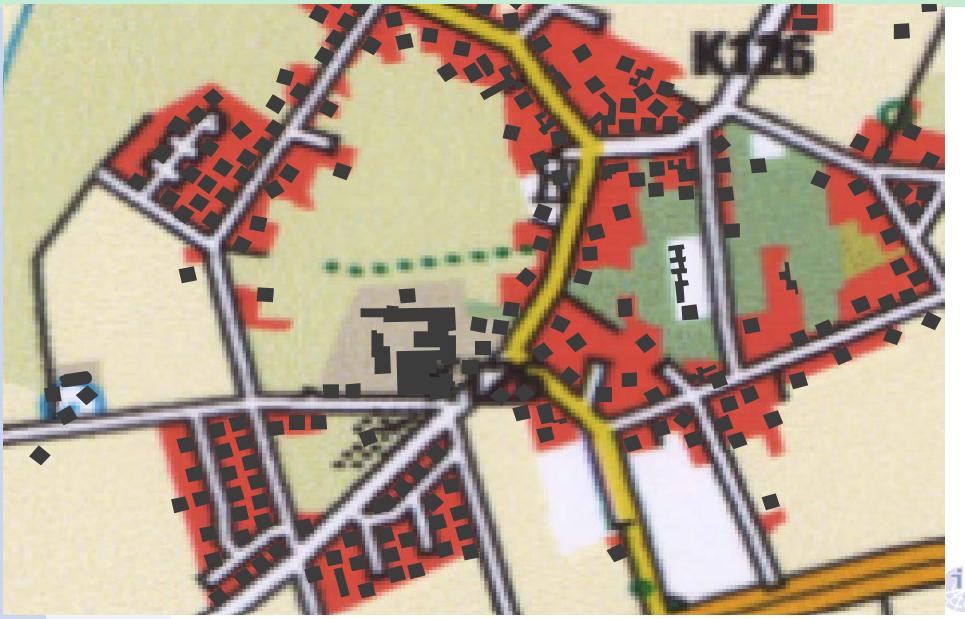
Buildings too detailed and small;
Overlap with streets

... Result of typification (gray)

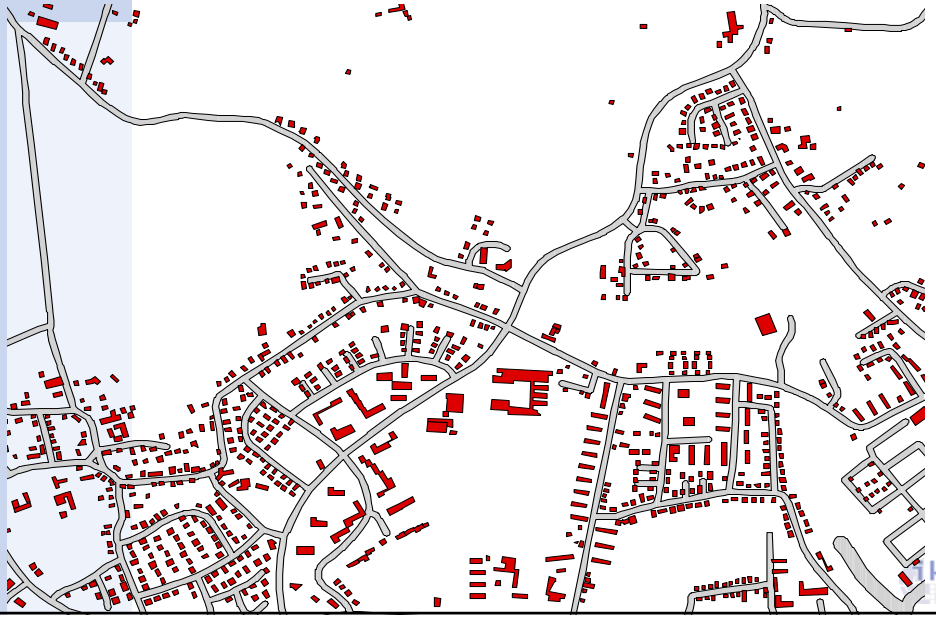
Result of typification



Overlay of typified buildings and DTK50



Original – Buildings 1:1000



1:25.000

1:50.000

1:75.000

Continuous Generalization

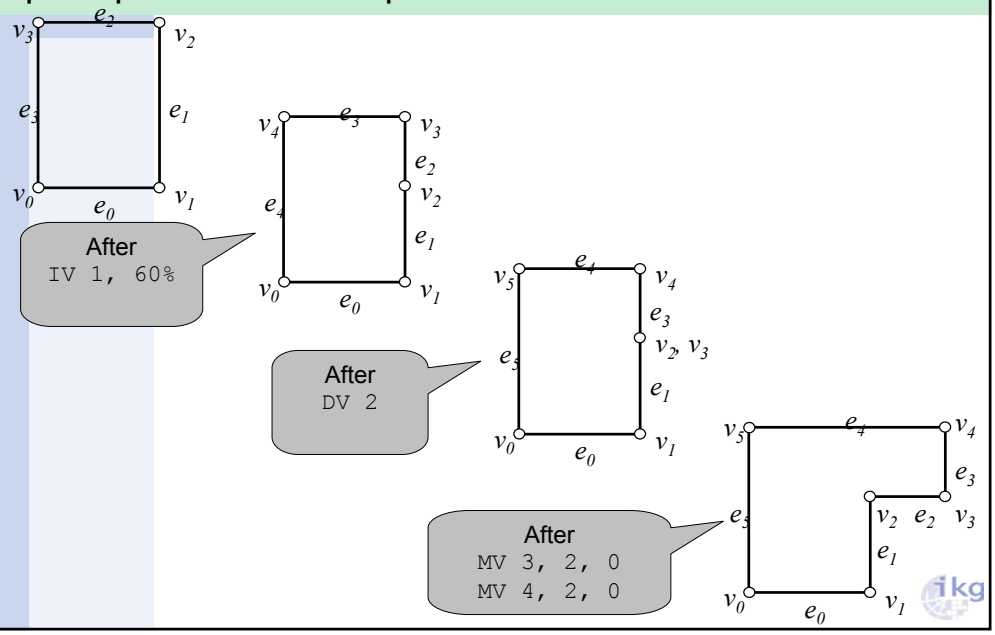
(for more information -> SDH 2004-Proceedings)

Simple Operations

- EGO's can be subdivided into simple operations (SO's)
- SO's may modify geometry or topology

Opcode	Description	Parameters	Inverse Operation
`IV`	Insert Vertex	`IV` <edge id> <rel. position>	`RV` <edge id + 1>
`DV`	Duplicate Vertex	`DV` <vertex id>	`RV` <vertex id + 1>
`MV`	Move Vertex	`MV` <vertex id> <dx> <dy>	`MV` <vertex id> <-dx> <-dy>
`RV`	Remove Vertex	`RV` <vertex id>	–

Simple Operations: Example



Continuous Generalization Demo