

+ swisstopo + +

Bundesamt für Landestopographie  
Office fédéral de topographie  
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## Multirepresentation Database as Basis for Topographic Maps

Novit Kreiter

# Goals of the diploma thesis

- Describing the components of a MRDB
- Definition of a data model for object linking
- Examination of a workflow from an object oriented database draft to a GIS-database
- Implementation of test data
- Suggestion for an efficient support of the updating process for topographic maps and landscape models

# MRDB Architecture

TLM: Topographic  
Landscape Model



# MRDB

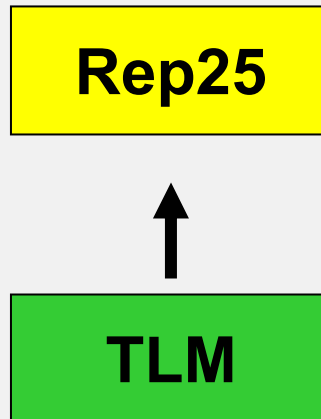
## Architecture

### Topographic Landscape Model TLM

- Basis for the MRDB and furthermore for most topographic products such as maps and landscape models
- Primary geometry, captured data
- Including topology
- 3-dimensional
- possibly: cooperation with external data providers
- state of development at **swisstopo**: concept

# MRDB Architecture

Rep: Representation  
TLM: Topographic  
Landscape Model



# MRDB

## Architecture

### Representation

- Basis for Vector Map as well as for further topographic products at a certain scale (-range)
  - Cartographically generalized
  - Including topology
  - 2- or 3-dimensional
- 
- State of development at **swisstopo**: preliminary study

# MRDB Architecture

VMap: Vector Map

Rep: Representation

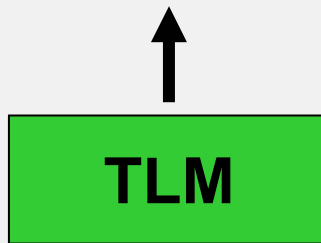
TLM: Topographic  
Landscape Model



symbolization



generalization



# MRDB

## Architecture

### Vector Map

- Automatically derived from the cartographically generalized Representations through symbolization
- No independent dataset, only a visualization of RepXX
- Supports interactive generalization:

Update environment (generalization view)

Visualization environment (map view)

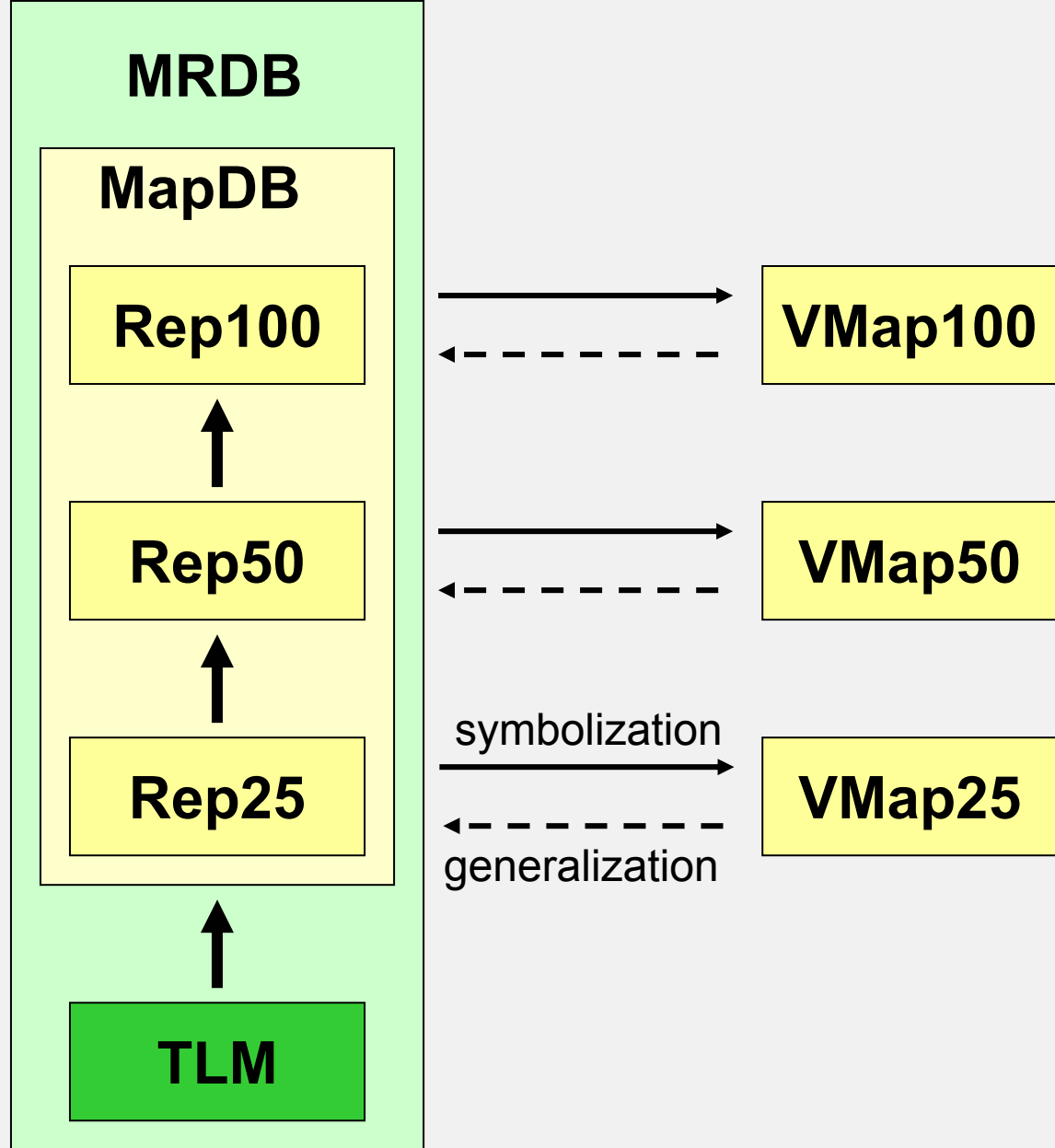
- State of development at **swisstopo**: preliminary study

# MRDB Architecture

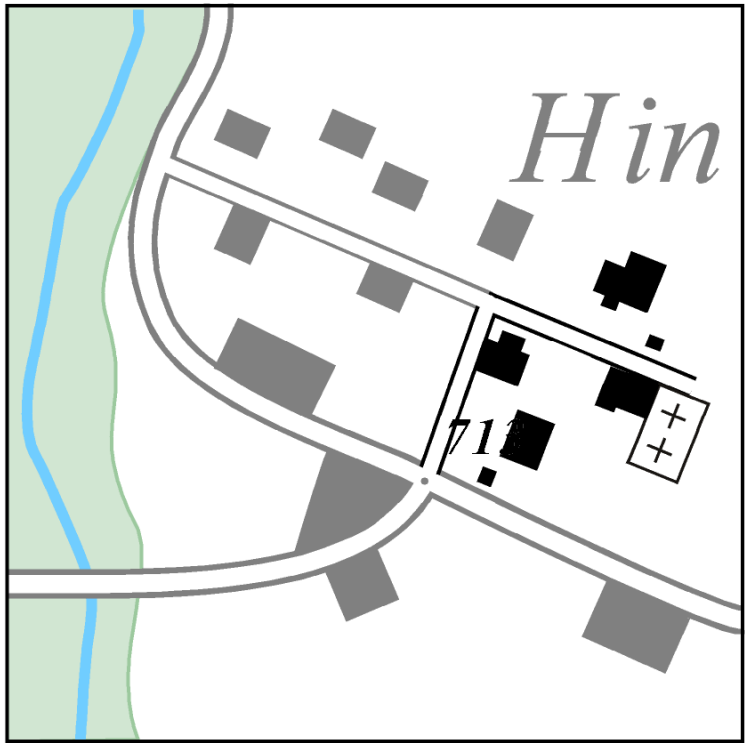
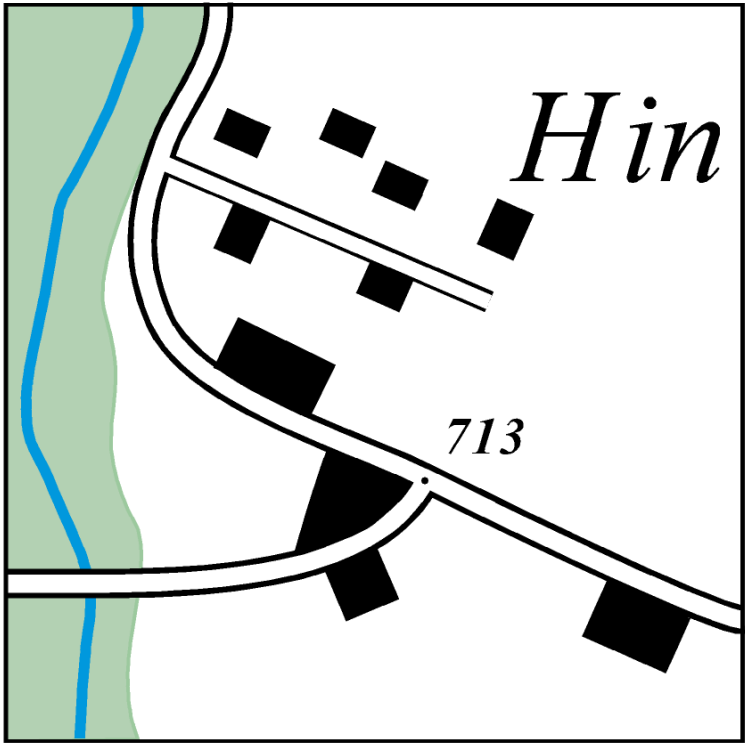
VMap: Vector Map

Rep: Representation

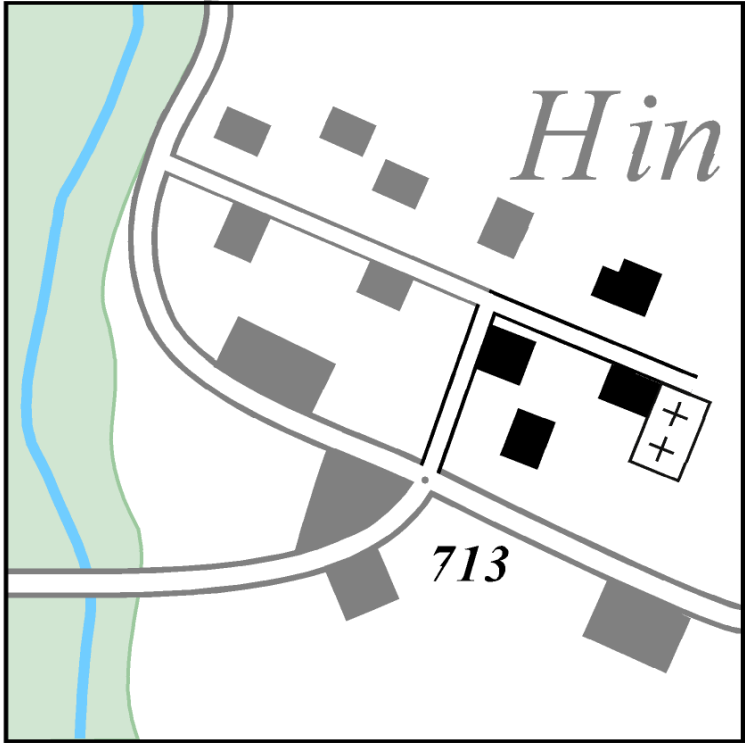
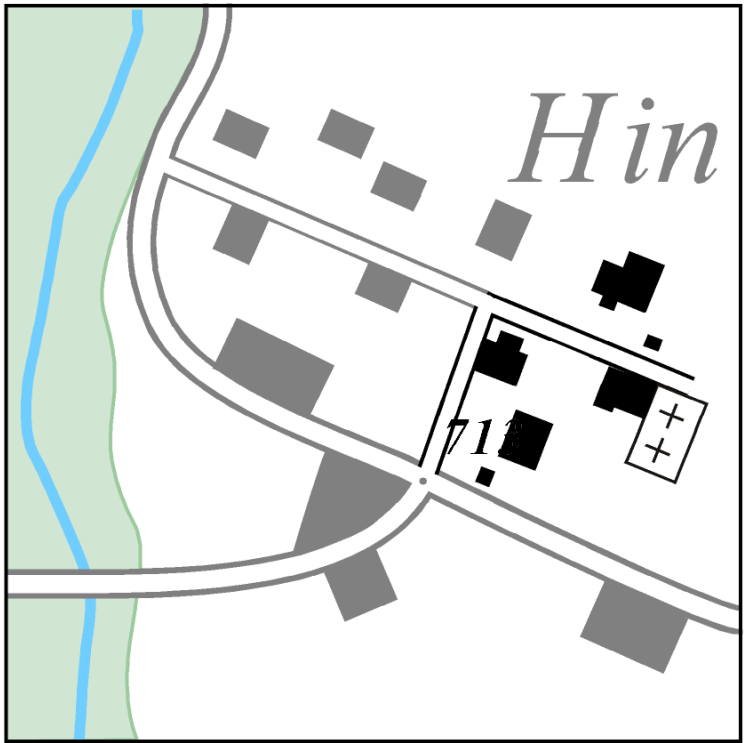
TLM: Topographic  
Landscape model



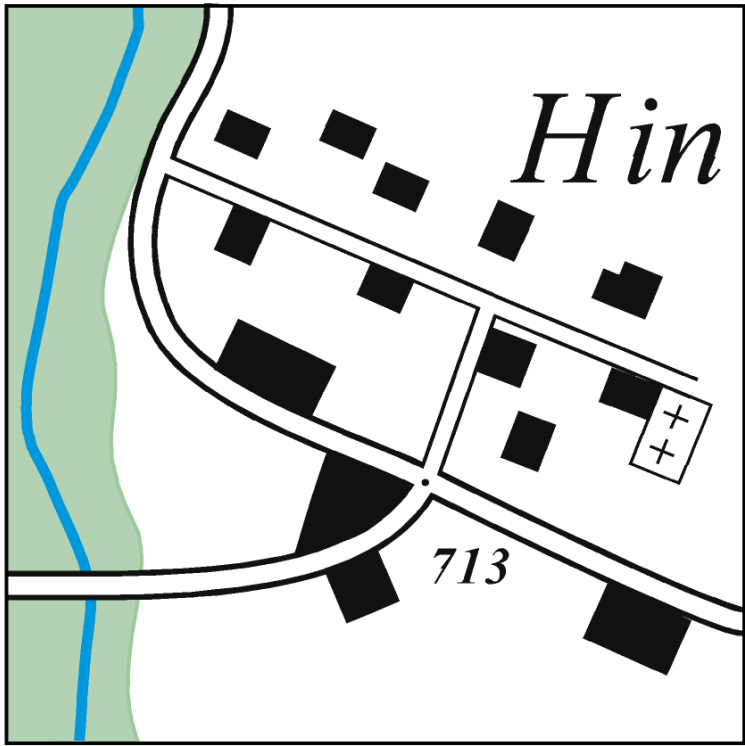
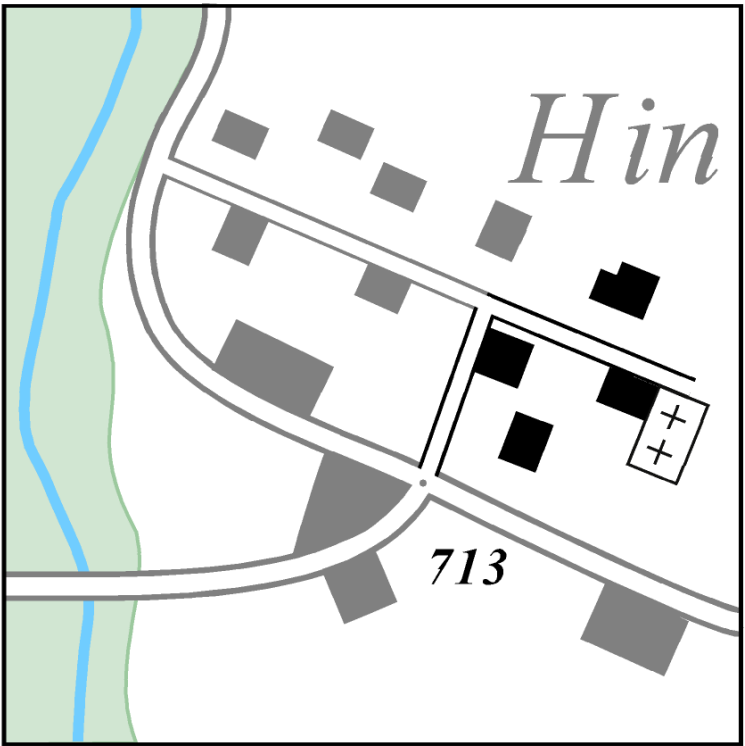
# Updating TLM → Rep25



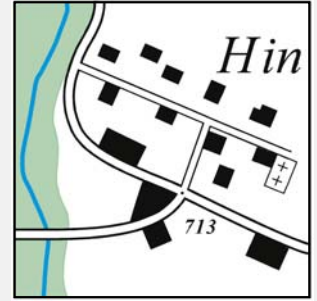
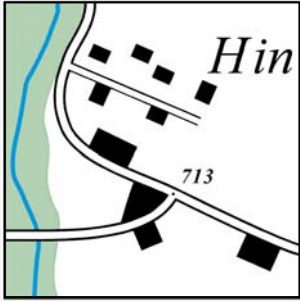
# Updating TLM → Rep25



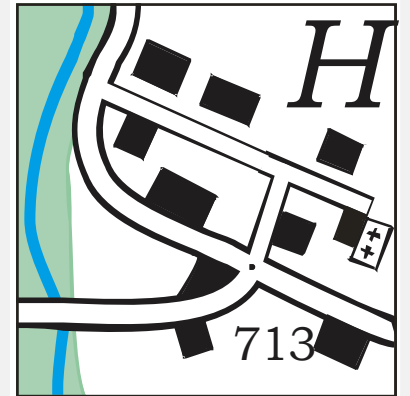
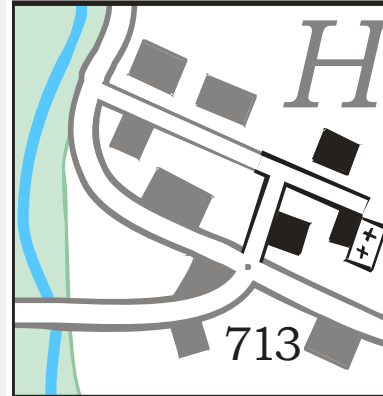
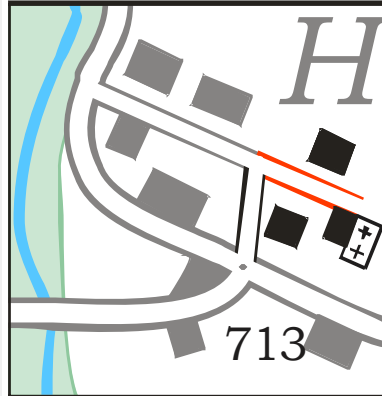
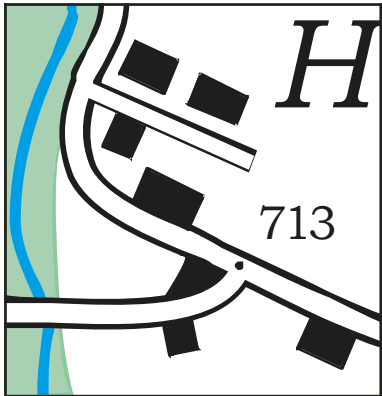
# Updating TLM → Rep25



# Updating Rep25 → Rep50



- Support through automatic generalization suggestion



# Conclusions

## Discussion

### Development of MRDB:

- Promising interoperable workflow from object oriented database design to GIS-database
- Question 1: Generation of missing Representations
- Question 2: Matching of corresponding objects  
(if not part of generation through derivation)
- Question 3: Interface GIS – (carto)graphic software