

Tobias Knerr

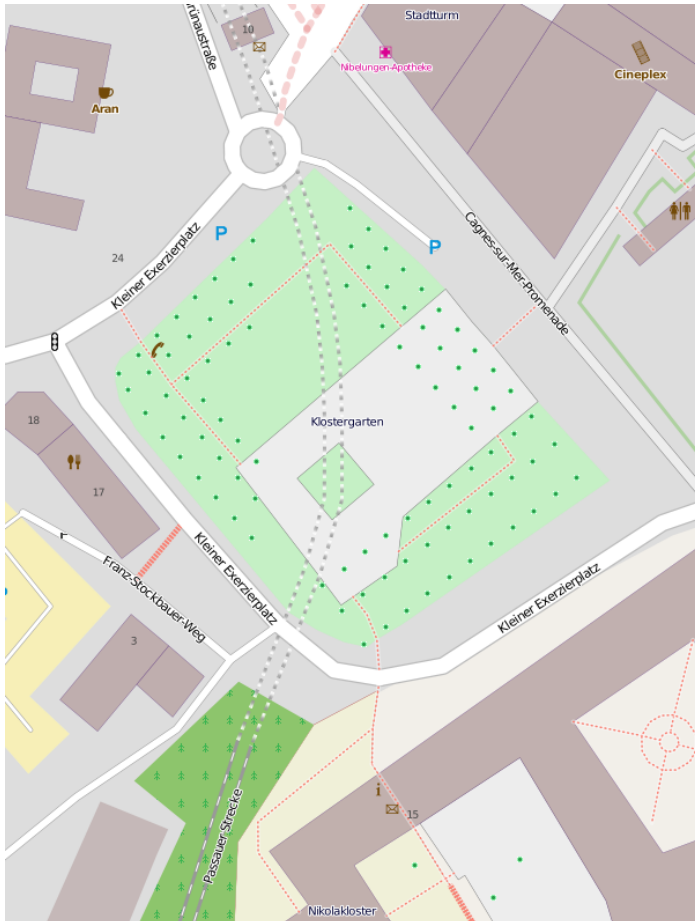
OSM2World

3D Rendering for OpenStreetMap

SOTM 2013

Why 3D?

Why 3D? – Mapper's perspective



- lack of visual feedback for many detailed tags
- “complete” maps in many regions
- opportunity to expand our scope

Why 3D? – Use cases

- Many potential applications:
 - improved visuals for maps
 - virtual reality
 - modelling software
 - simulations
 - video games
 - ...

3D Mapping

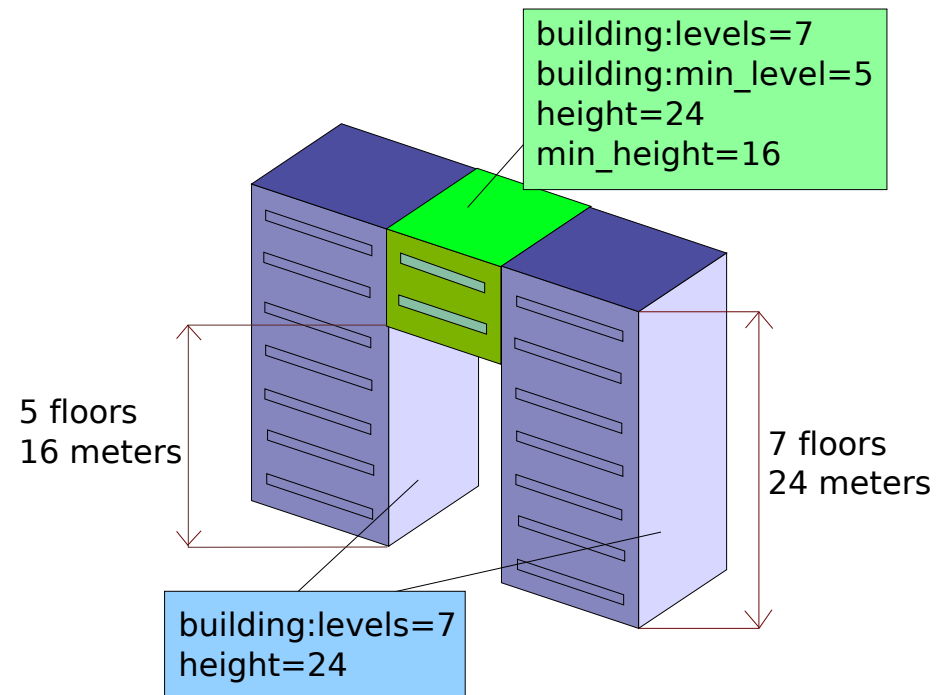
3D Mapping: Buildings

- Basics

- building=*
 - building:part=*

- Levels and Height

- height
 - min_height
 - building:levels
 - building:min_level



3D Mapping: Buildings

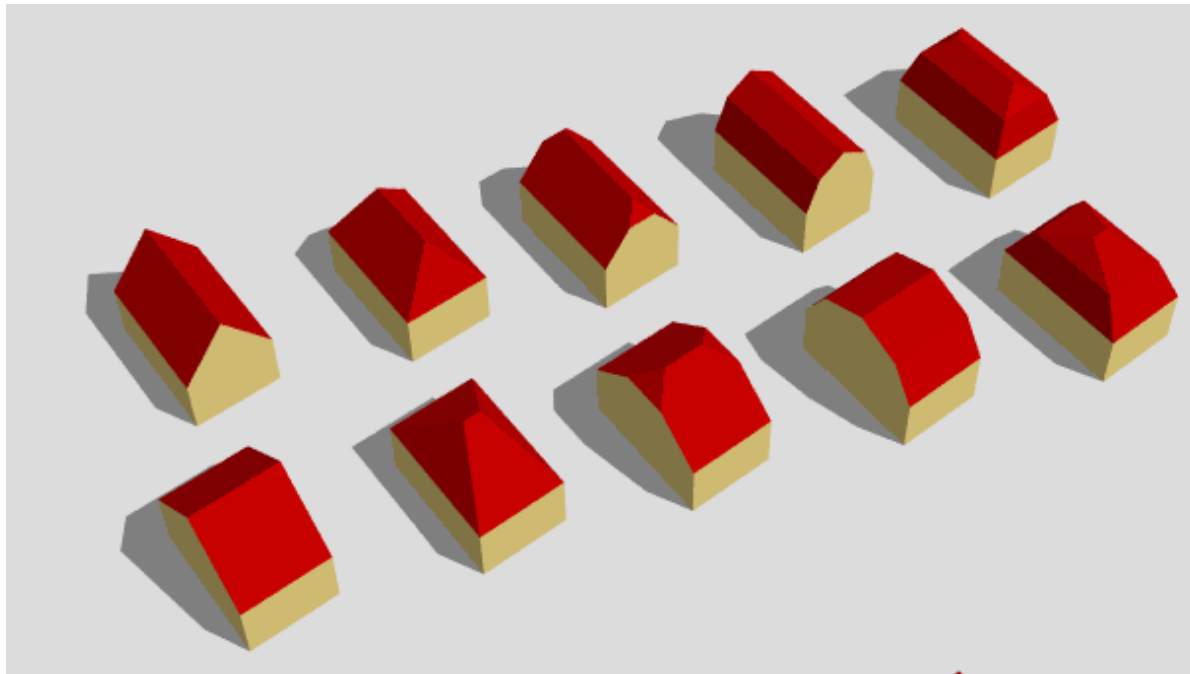
- Materials

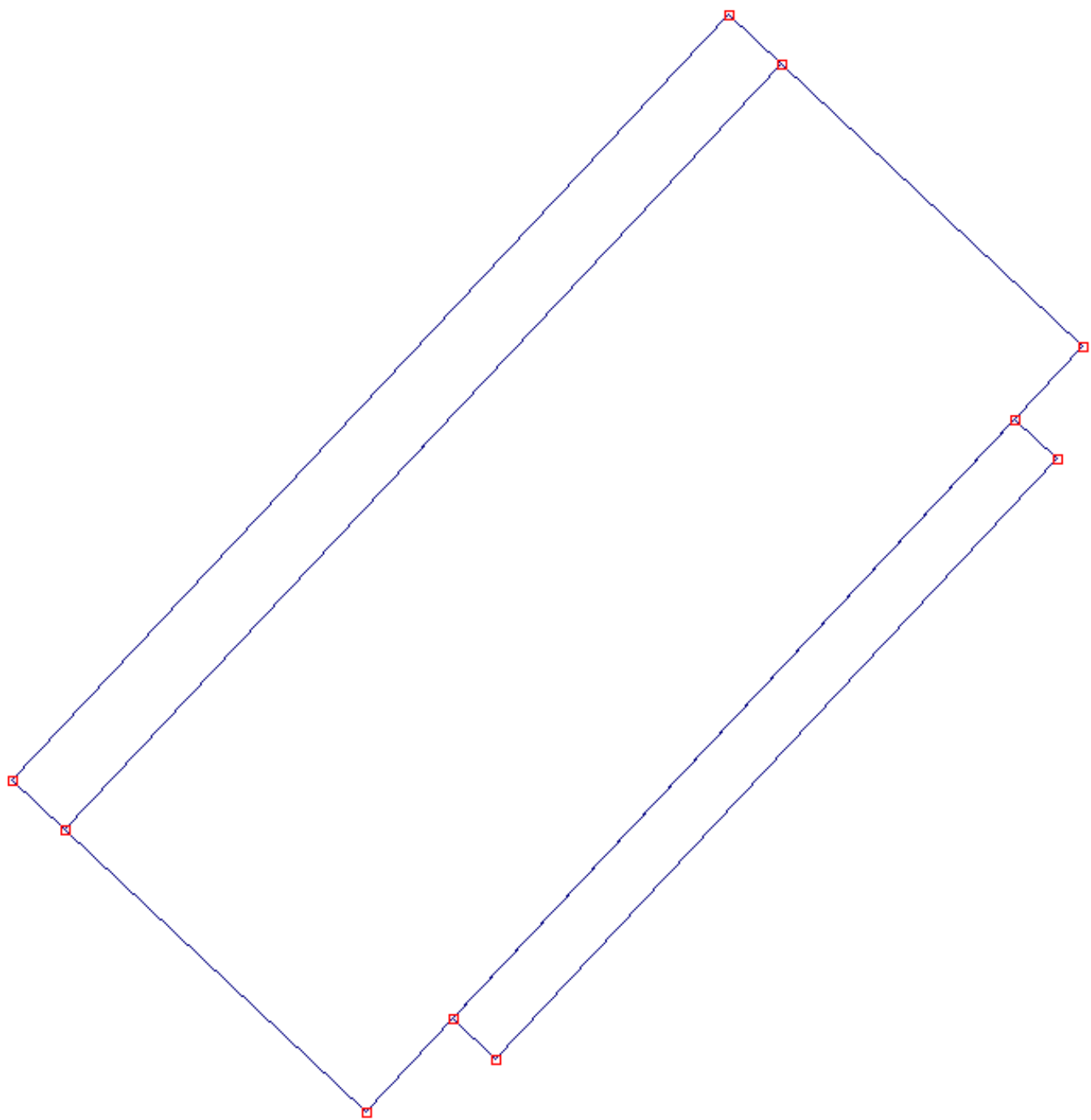
- building:material
- building:colour
- roof:material
- roof:colour

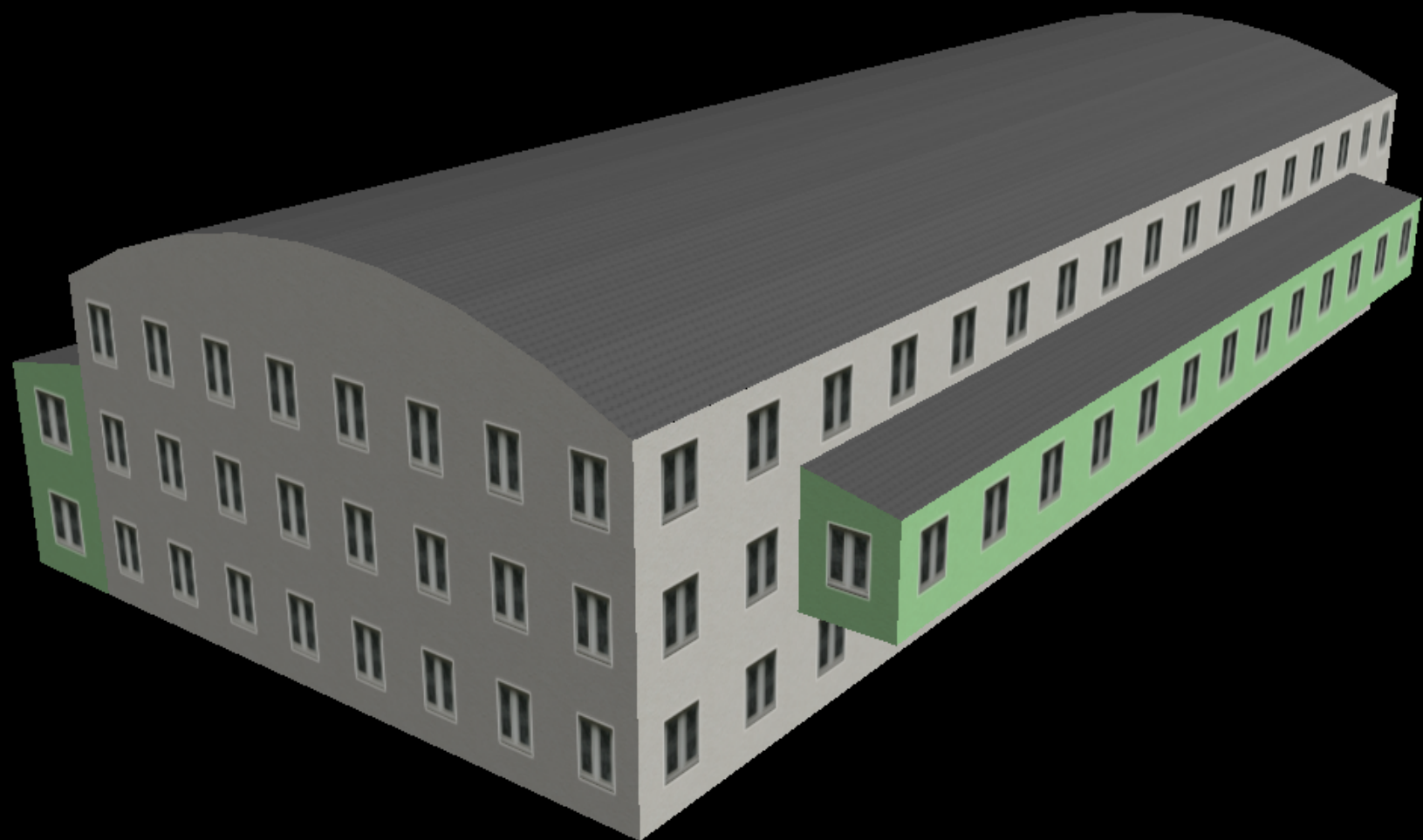


3D Mapping: Buildings

- Roof shapes
 - `roof:shape = flat/gabled/hipped/mansard/...`
 - `roof:orientation` or `roof:direction`

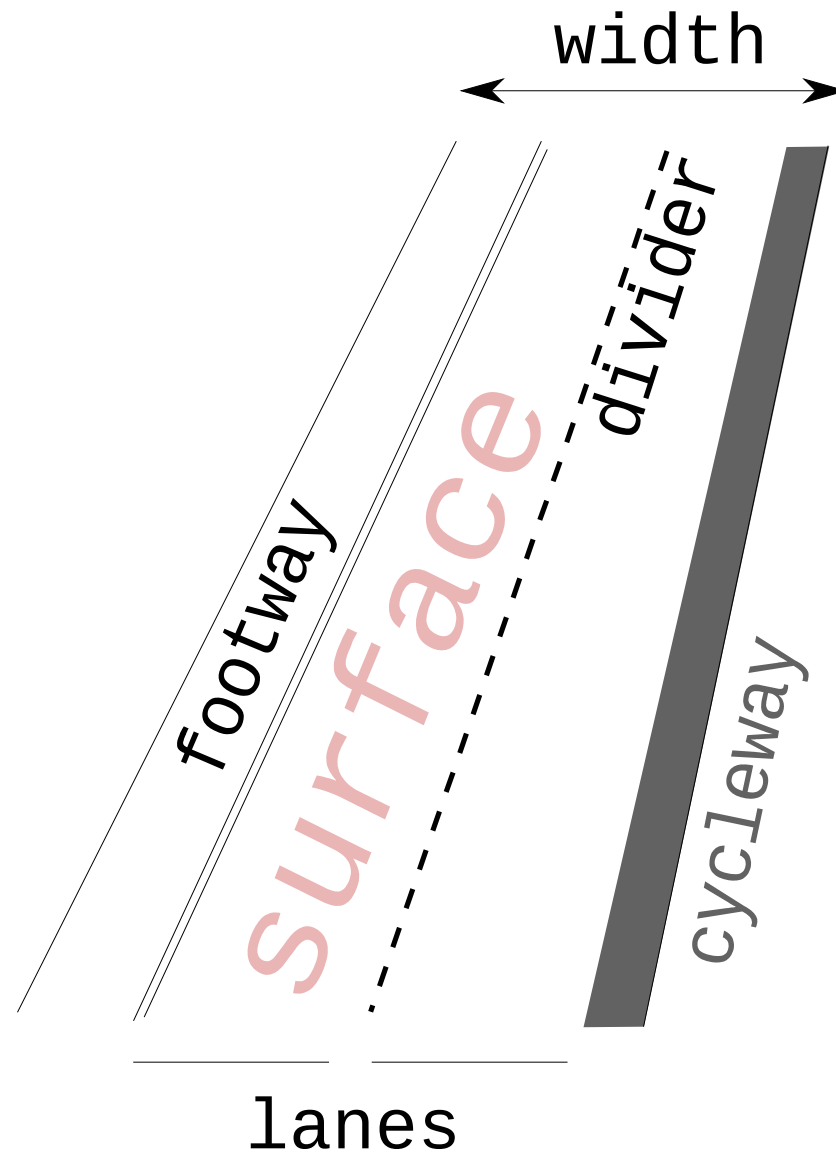






3D Mapping: Highways

highway



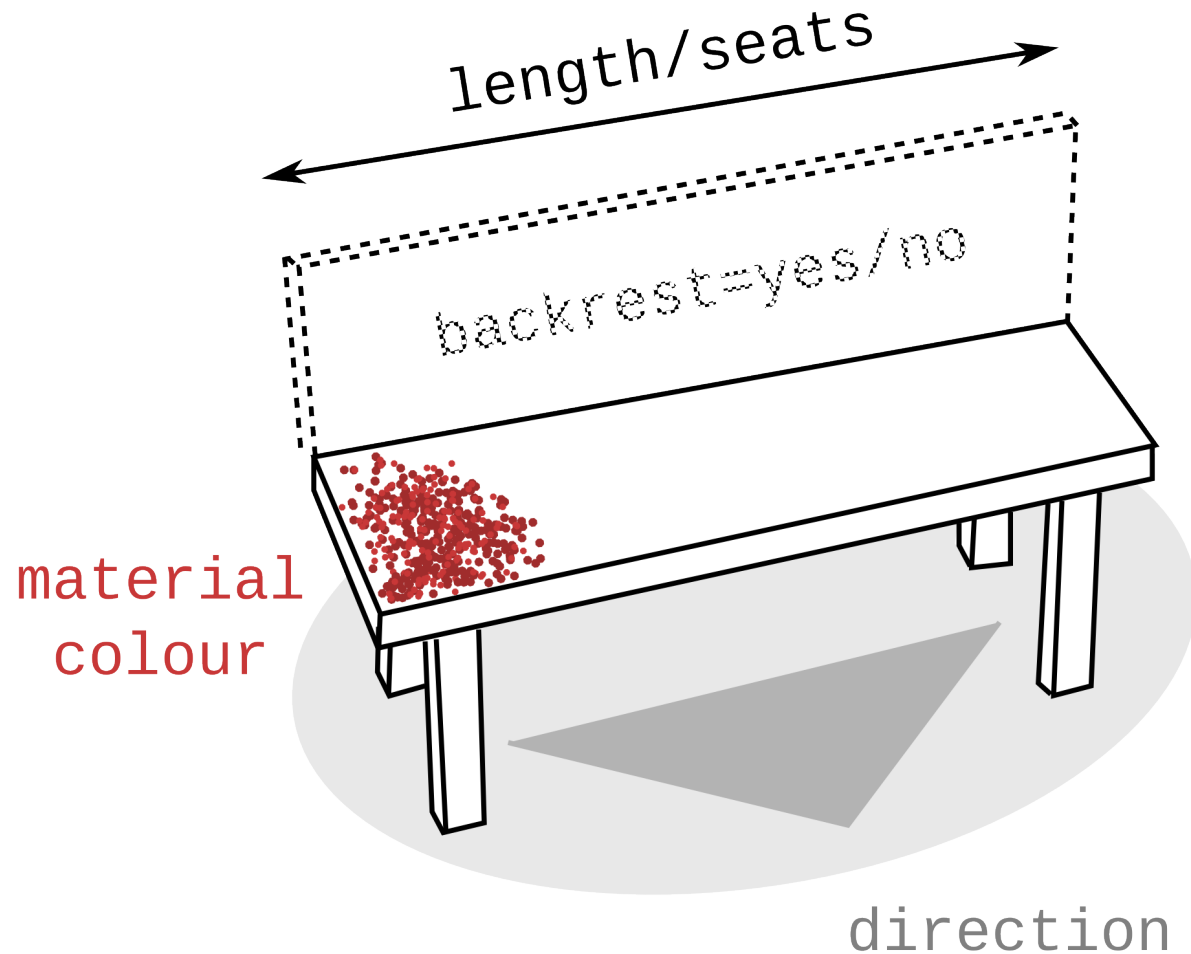
3D Mapping: Highways

- Some information is not specific to 3D:
 - footway, cycleway
 - surface
 - turn lane layout
 - highway=crossing
 - traffic lights
 - ...
- Frequently: 3D as motivation to collect data which is useful elsewhere.



3D Mapping: More Stuff

amenity = bench





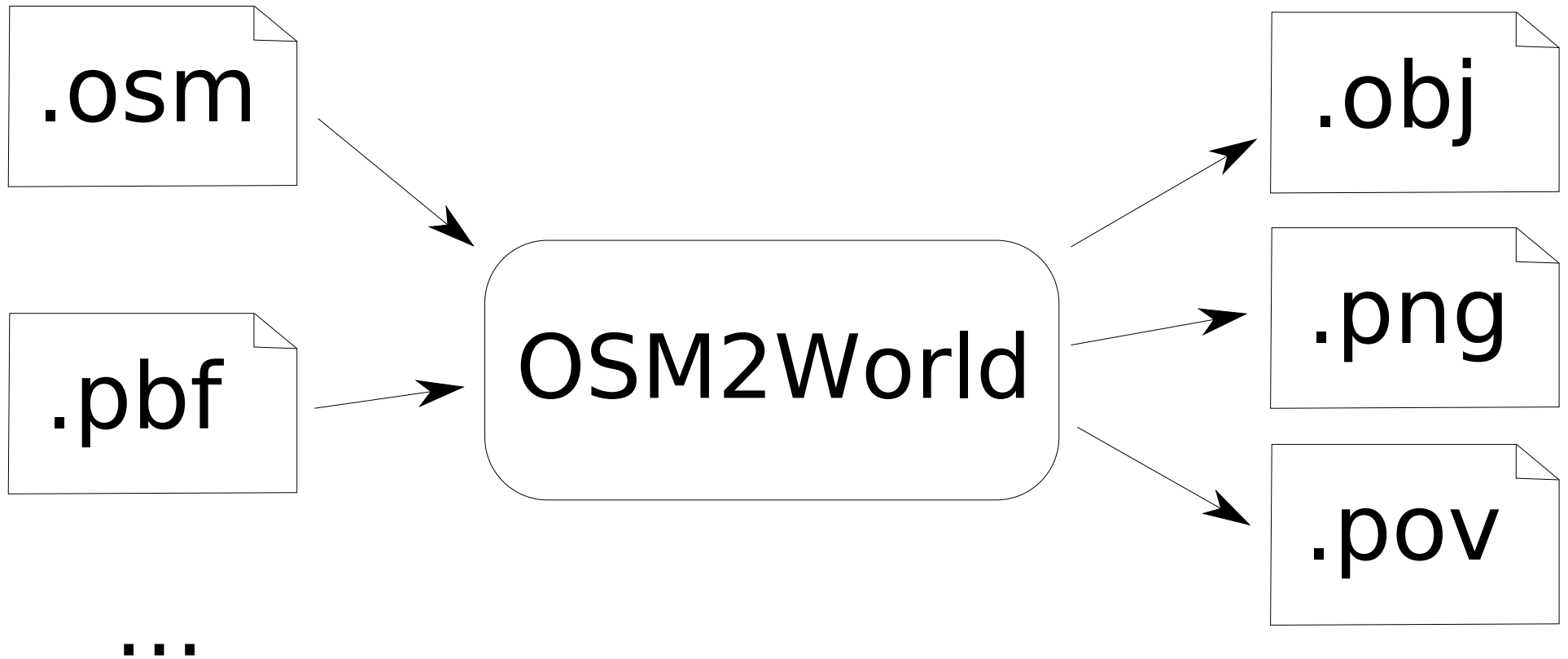
Using 3D Data with OSM2World

OSM2World

<http://osm2world.org>

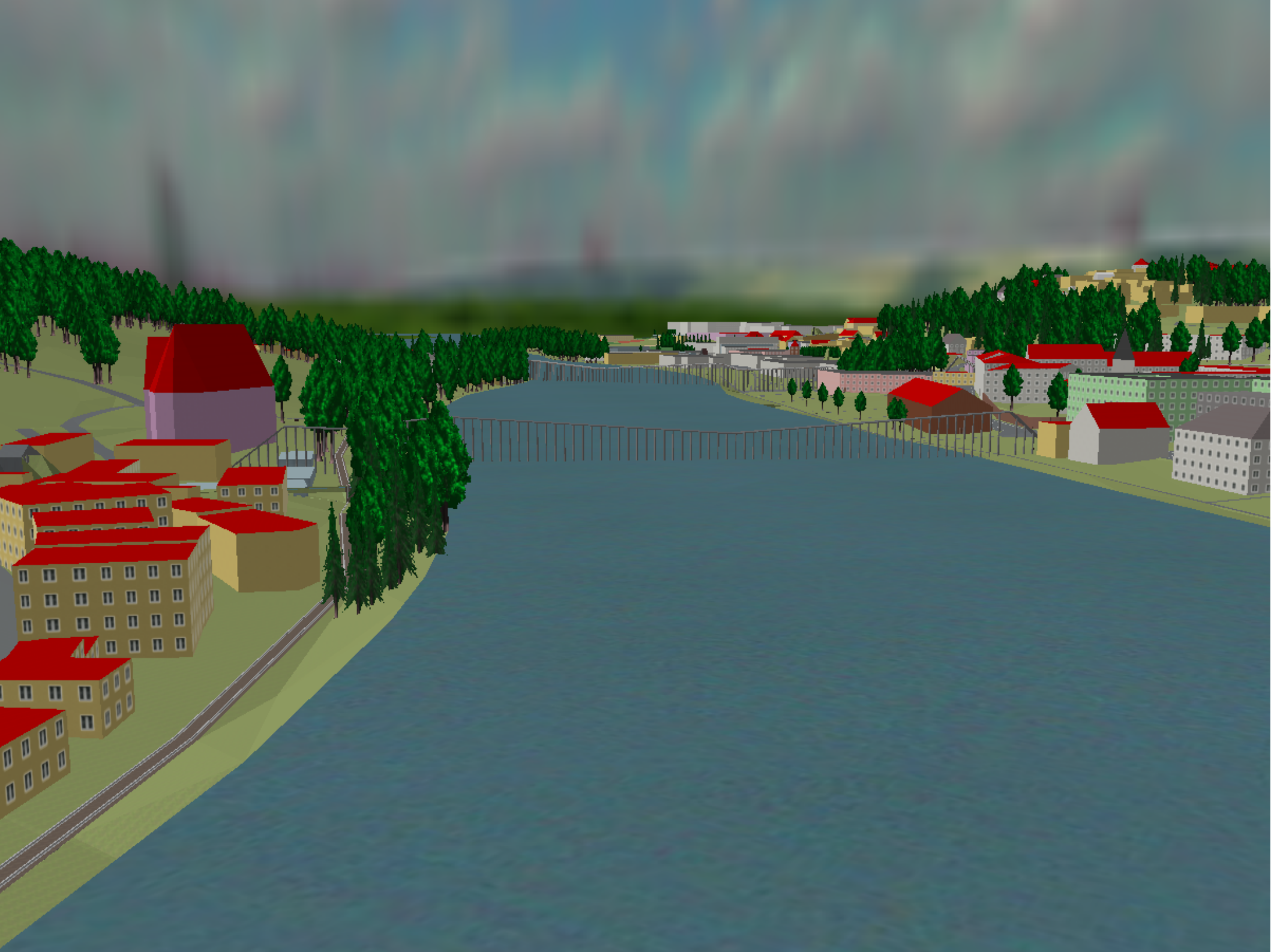
- Free Software (LGPL)
- 3D models from OpenStreetMap data
- Flexible use as converter and renderer

OSM2World: Basics



OSM Data

3D Models

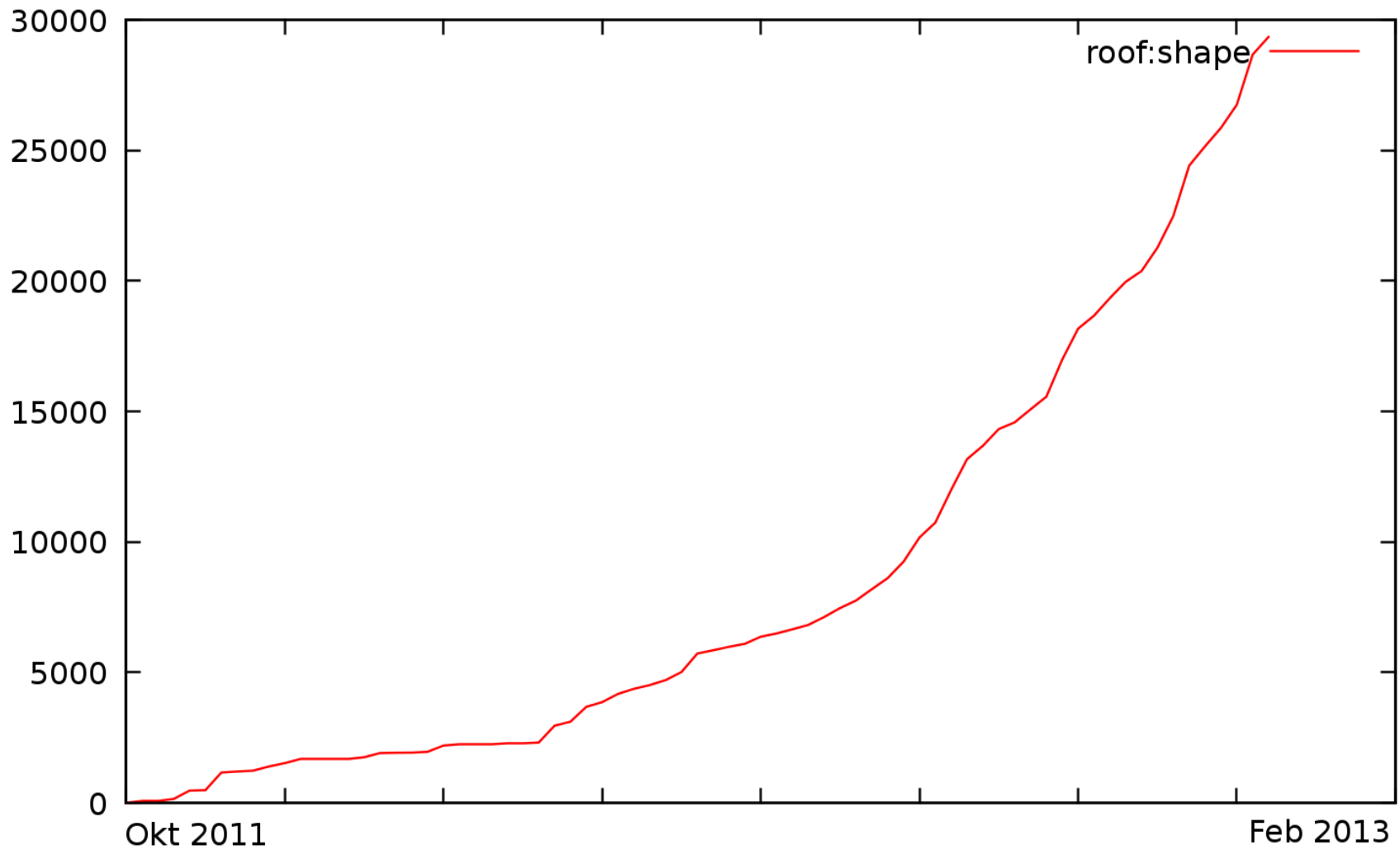


OSM2World: Viewer Application

- locally installed Java application
- loads any .osm, including JOSM output
- configuration through style & config files
- free camera placement and scene exploration
- export to all supported formats
- optional CLI for tile rendering, batch exports ...



OSM2World: Slippy map



OSM2World: Slippy map

- uses OpenLayers
- 4 viewing directions
- pre-rendered tiles (due to slow rendering)
- about 1–2 weeks for each update ☹️
- coverage: D, A, CH only ☹️☹️
- small areas elsewhere possible:
just ask me ... or host SOTM

OSM2World: WebGL

- (probably) the future of 3D web content
- no server-side OpenGL required
=> better coverage and faster updates
- animations, free camera, weather effects ...
- but: WebGL service still under construction



The Future of 3D

The Future: Tagging improvements

- hints for elevation (currently mostly SRTM):
 - incline, (physical) maxheights, river directions, ...
- bridge/tunnel areas or relations
- bridge classification
- lane transitions
- road areas, junction details
- some additional building tags

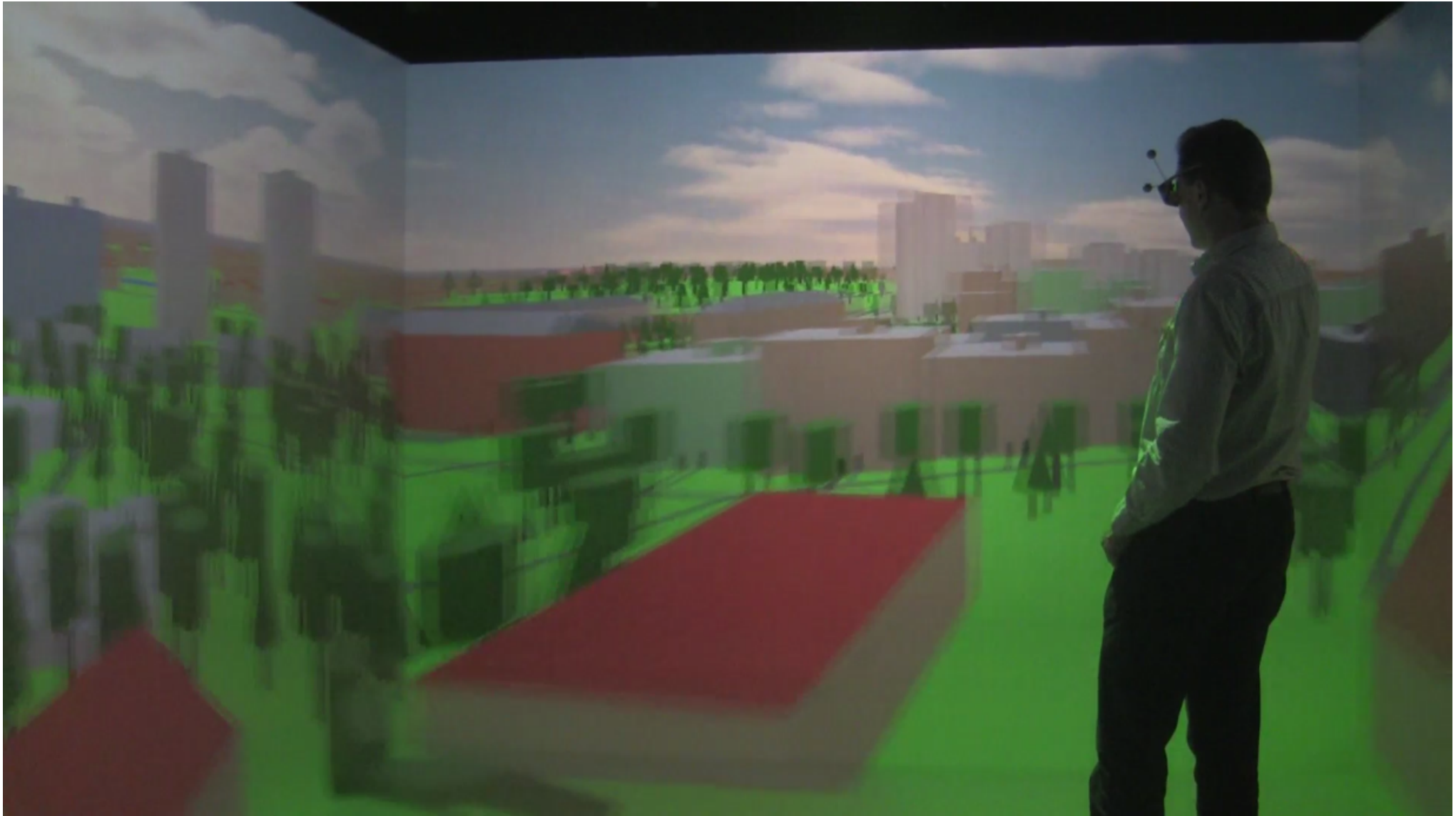
The Future: Model Repository



The Future: Creative Experiments



The Future: Creative Experiments



The Future: Creative Experiments

???

