Area Workshop

@ FOSSGIS 2017

Jochen Topf

Hintergrund

Was ist ein Polygon?

Was ist ein Multipolygon?

(Simple Features Definition)

Polygon

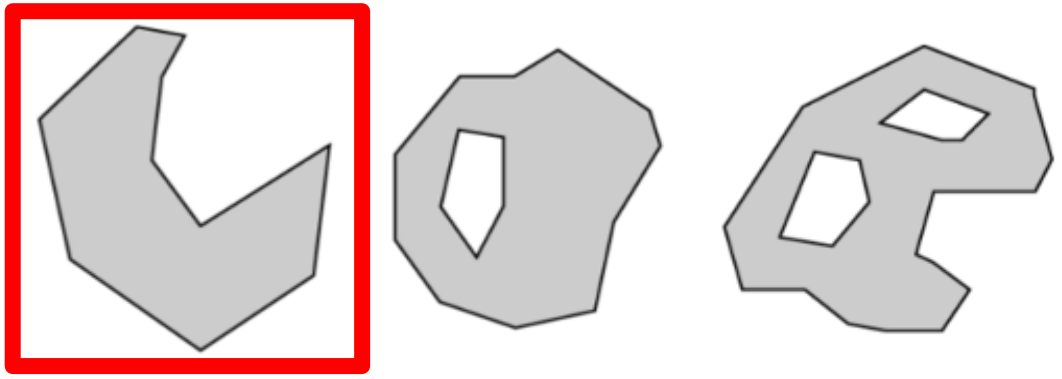


Figure 11: Examples of Polygons with 1 (a), 2 (b) and 3 (c) Rings, respectively

Multipolygon

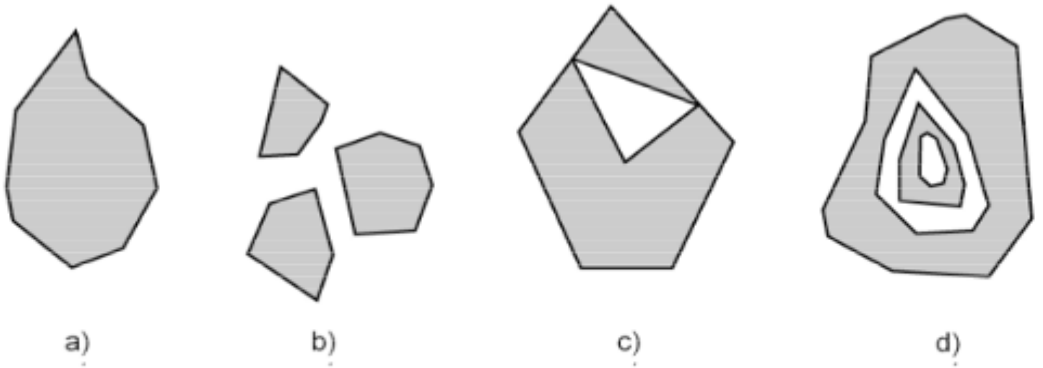
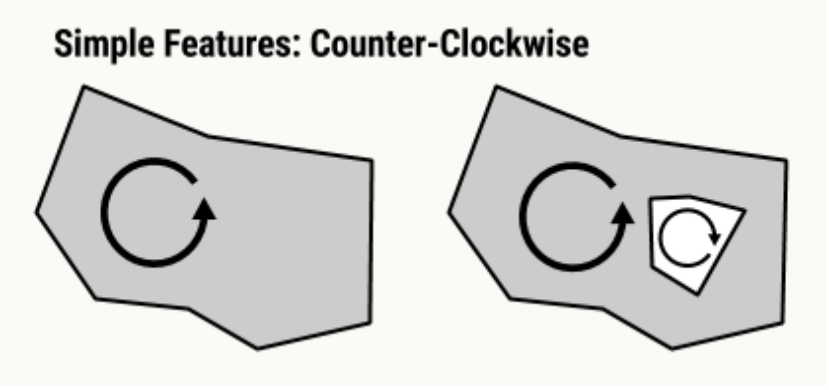


Figure 17: Examples of MultiPolygons with 1 (a), 3 (b) , 2 (c) and 2 (d) Polygon elements

Drehrichtung / Winding order



bei OSM nicht verwendet

Ungültige Polygone

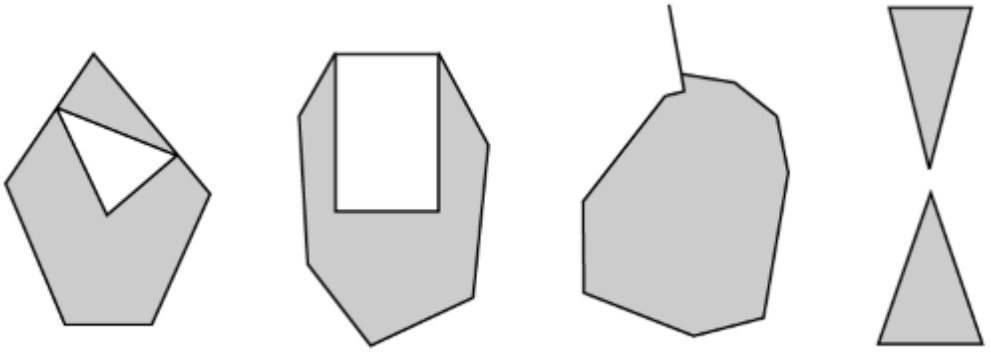


Figure 12: Examples of objects not representable as a single instance of Polygon

Ungültige Multipolygone

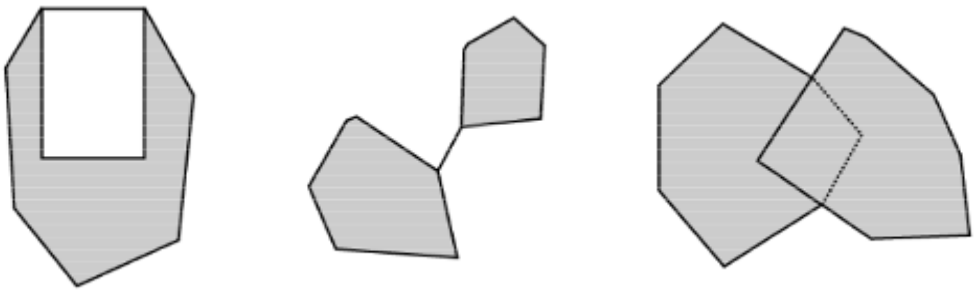
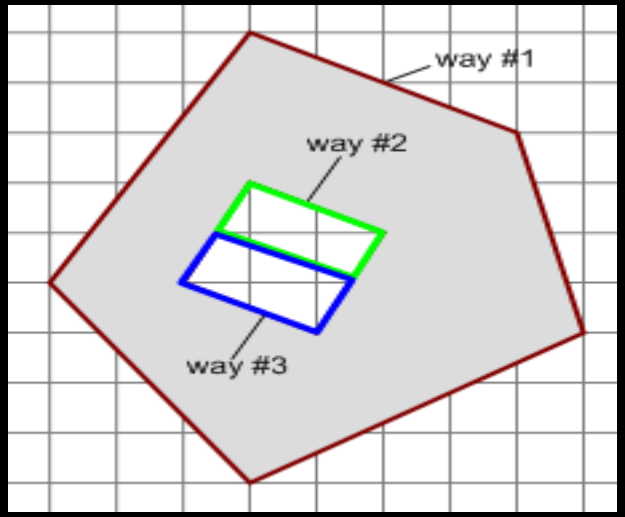


Figure 18: Geometric objects not representable as a single instance of a MultiPolygon

Spezialfall:
Berührende innere Ringe



Über welche Objekt-Typen reden wir?

1. Geschlossene Ways

   (area=yes)

2. Relationen mit Tags

   type=multipolygon
   or
   type=boundary

Zahlen

2,500,000 Relationen mit `type=multipolygon`
400,000 Relationen mit `type=boundary`

270 Millionen geschlossene Ways
220 Millionen davon sind Gebäude

3/4 aller Nodes sind für Polygone!

Typische Probleme

mit

Multipolygonen

Grundlegende Geometrie-Probleme

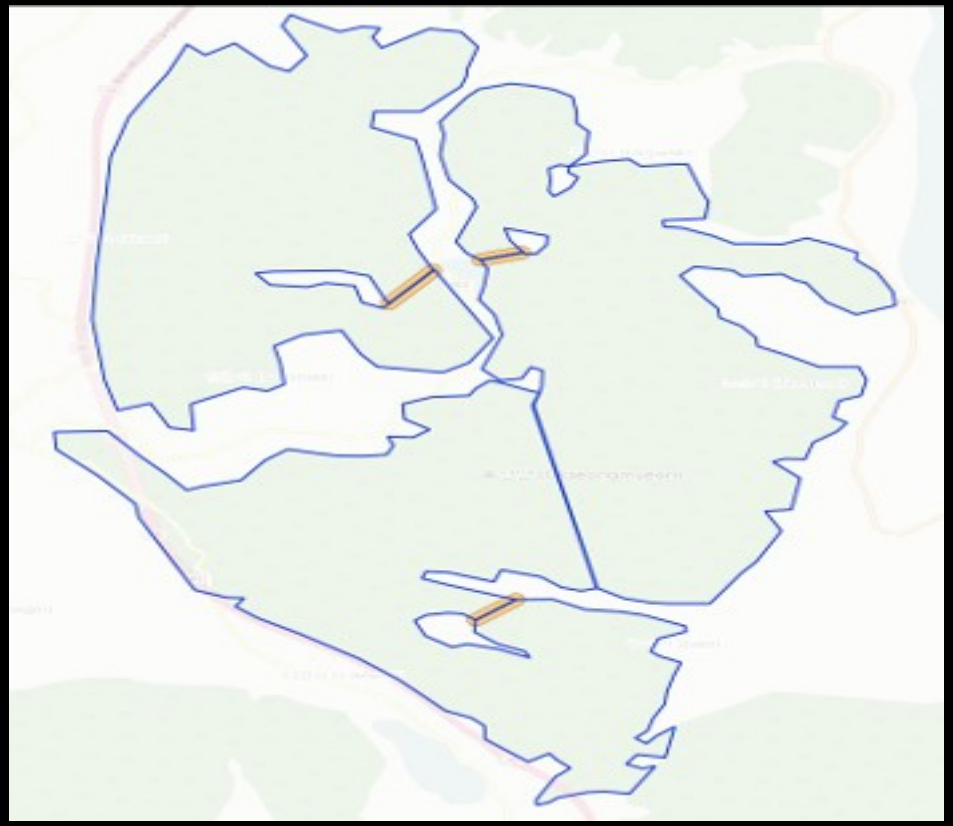
Zwei Nodes an der selben Stelle

Ways ohne Nodes

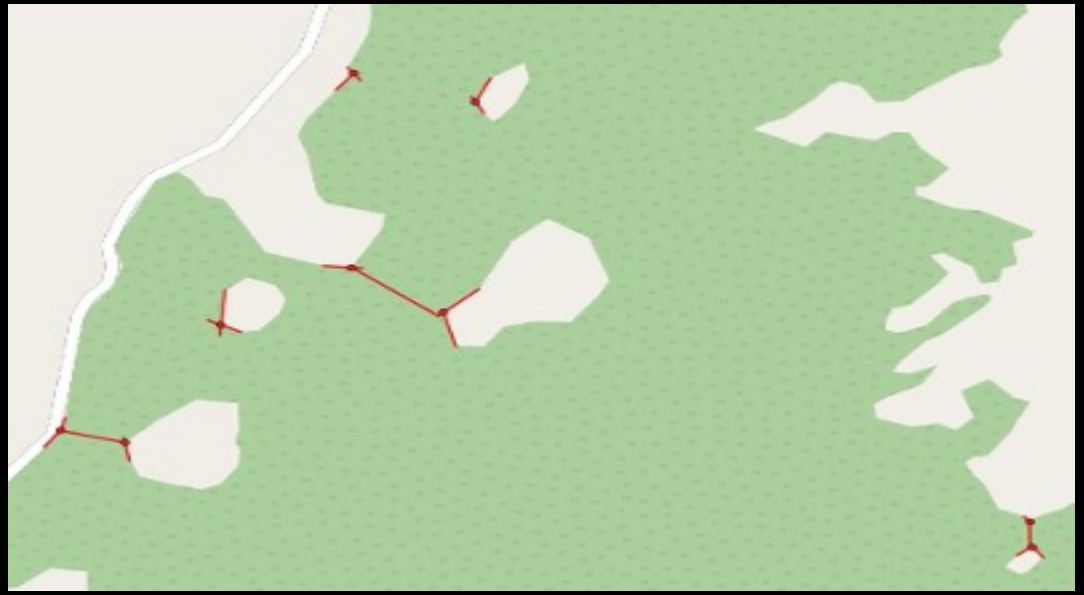
Ways mit einem einzelnen Node

Duplizierte Nodes in Ways

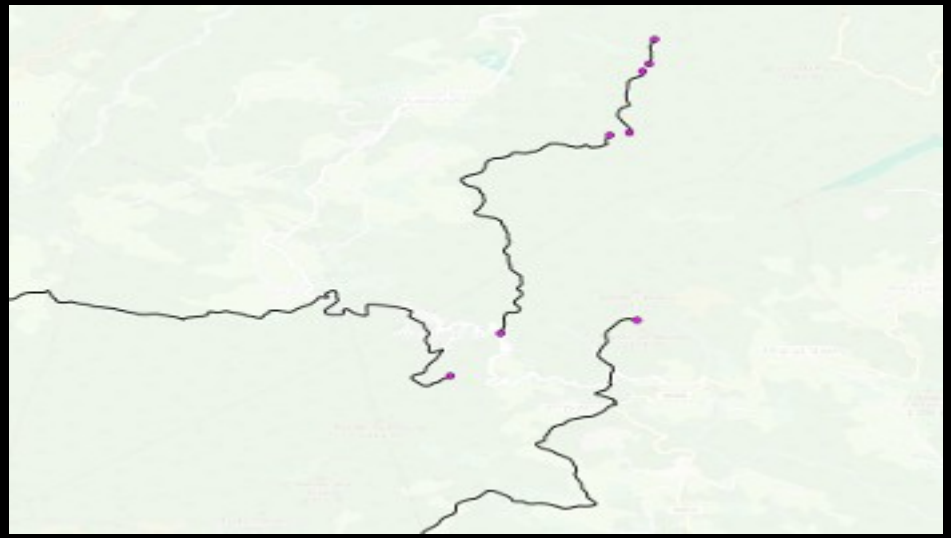
Duplizierte Segmente



Selbstüberschneidende Ways



Offene Ringe

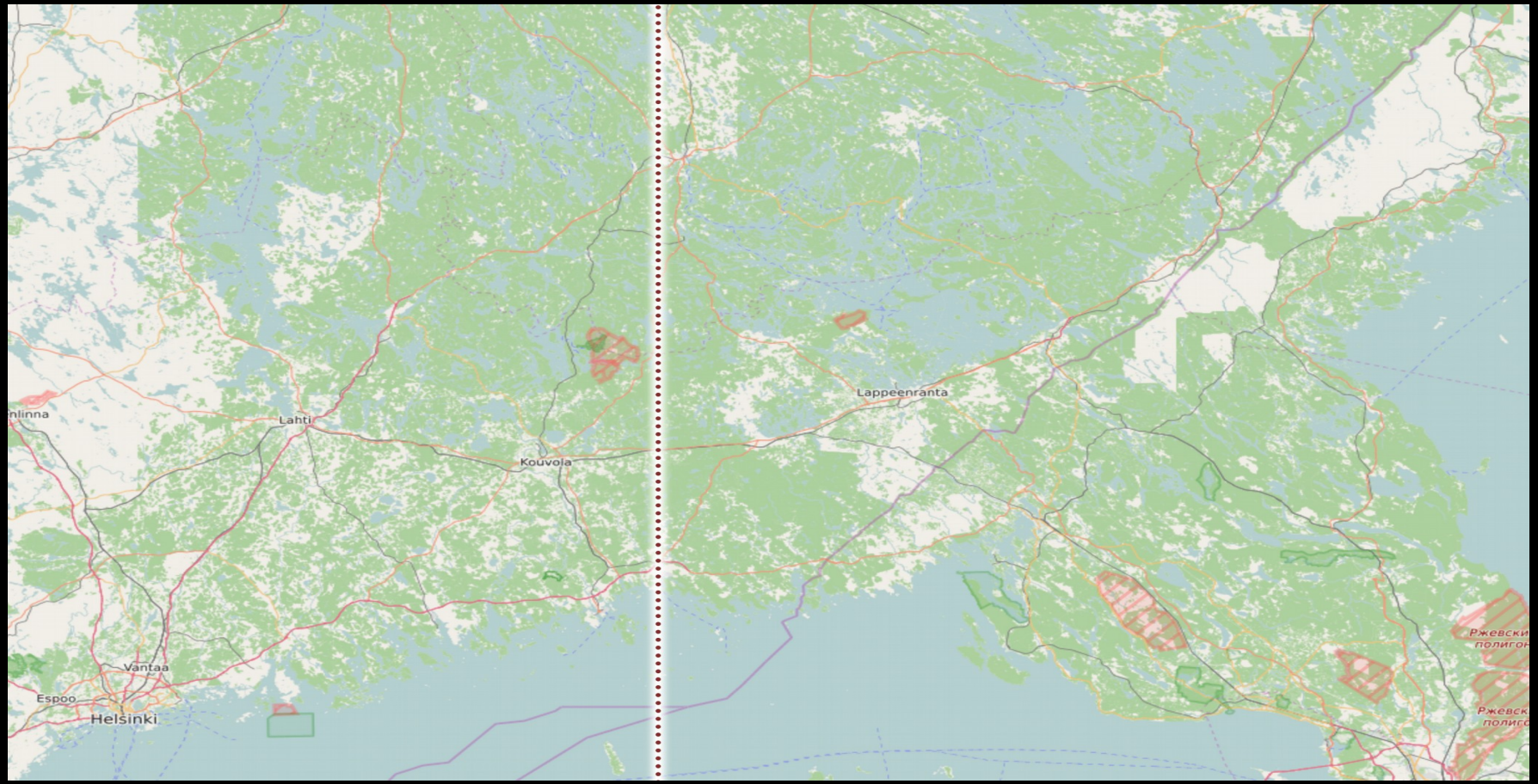


Berührende Ringe

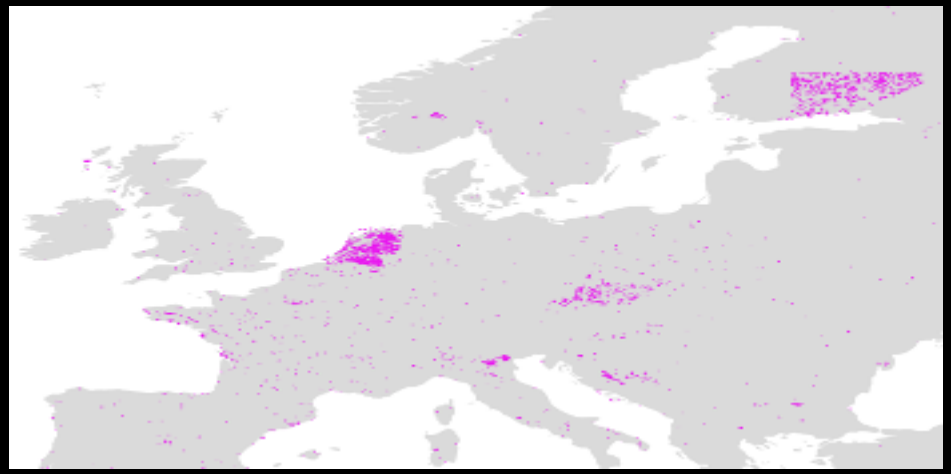
Probleme mit Roles

outer	☑
inner	☑
<empty>	☑
label	?
OUTER	☒
outline	☒

Old-style Multipolygone

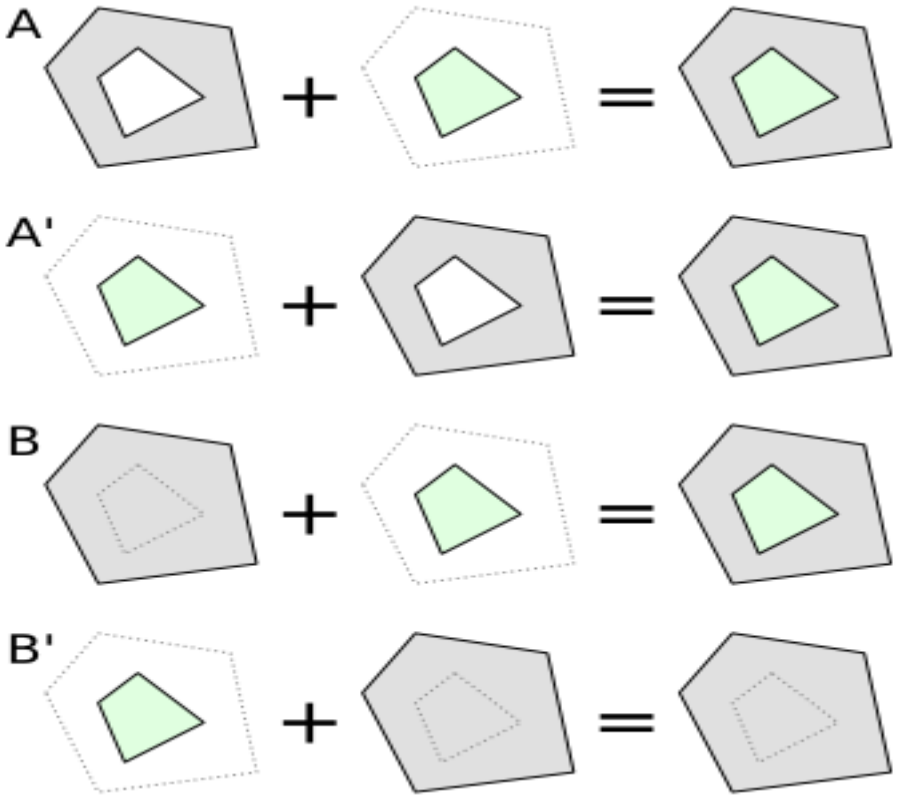


Innere Ringe
mit den gleichen Tags



Warum ist das ein Problem?

Effekt auf der Karte



Hängt ab von der Rendering-Reihenfolge!

Warum ist das ein Problem?

Geocoder

Viele Geometrie-Algorithmen funktionieren nur mit gültigen Geometrien

Kompliziert für Mapper

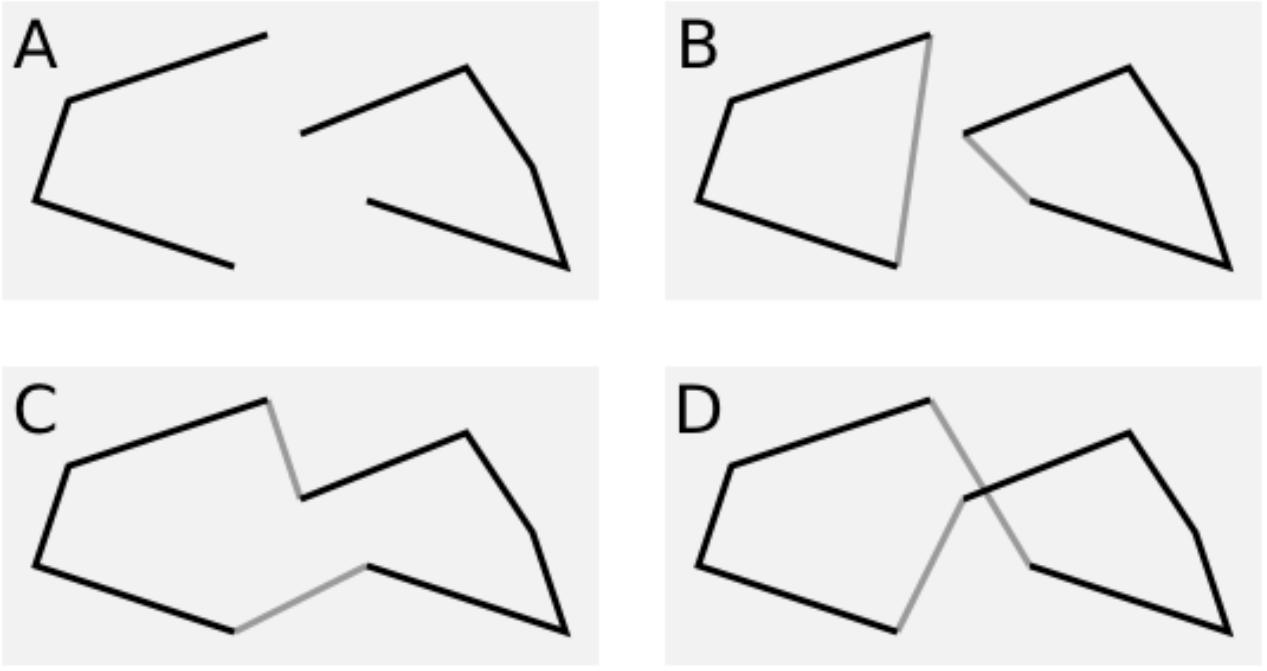
Datenverarbeitung

Großer Einfluß auf benötigte Ressourcen
bei der Datenverarbeitung.

Verarbeitung von old-style Multipolygons
erfordert, daß **alle** Multipolygon-Relationen
beachtet werden!

Was machen wir dabei?

Automatisch reparieren?



Automatisch reparieren?

Wie rausfinden, was korrekt ist?

Mehrfachfehler machen alles noch komplizierter

Datenfehler oft ein Anzeichen
für ein größeres Problem

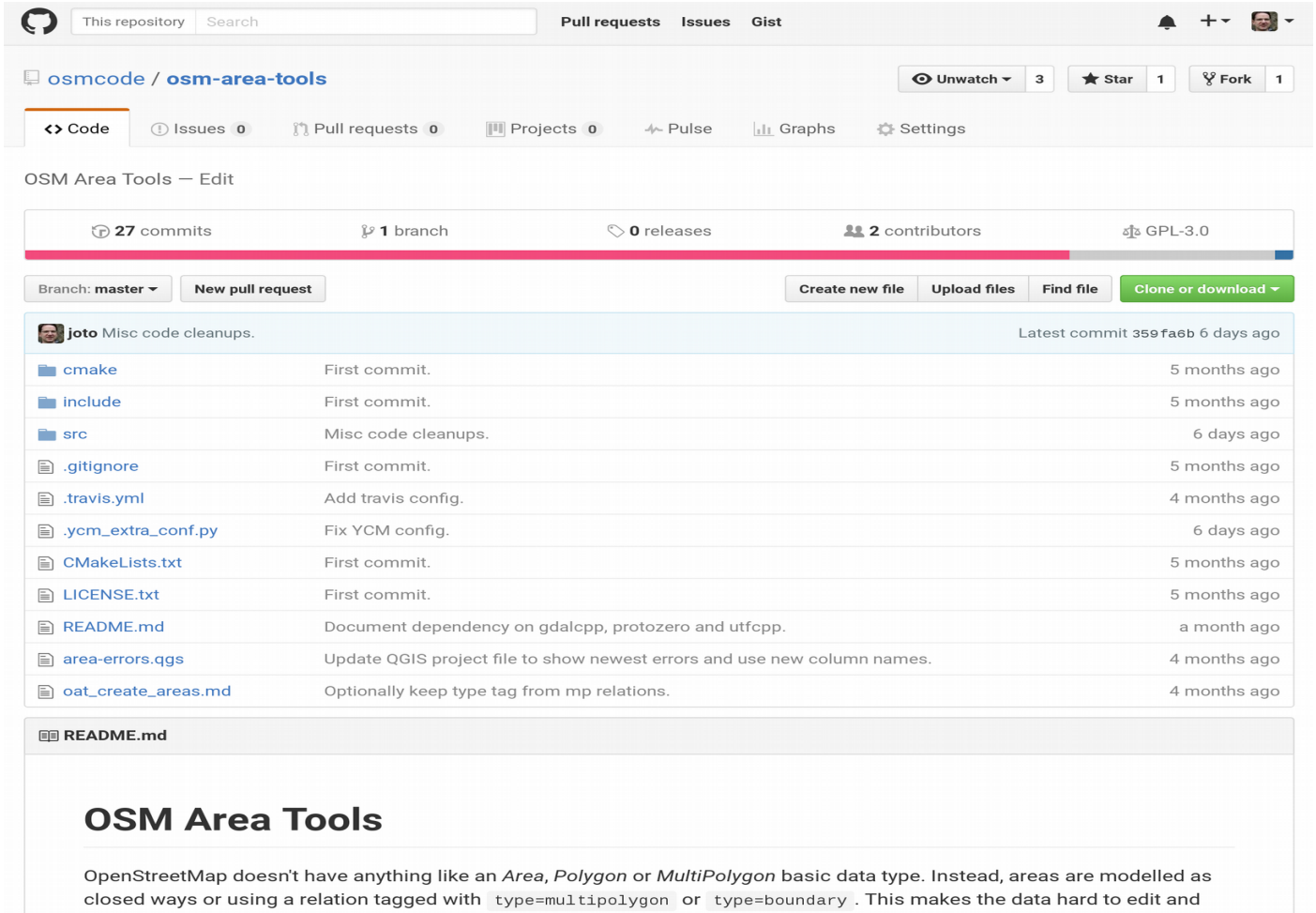
Automatisch reparieren?

Vielleicht in einigen
sehr klar definierten Fällen?

Importe reparieren?

Händische Reparatur
→ Wir brauchen Werkzeuge

github.com/osmcode/osm-area-tools



area.jochentopf.com

Fixing Polygons in OSM

News

Read the News about this effort.

There are many different ways (multi)polygons in OpenStreetMap can be mapped correctly and there are even more ways in which they can be mapped incorrectly. Of the over 260 million (multi)polygons in OSM more than 100,000 contain mapping errors of one kind or another and about 250,000 are tagged *old style* (with tags on the outer ways instead of on the relation) making multipolygon tagging and processing much more complicated and much more expensive than it needs to be. But this is not only about multipolygon relations, it is also about polygons created from closed ways. They also can and do have errors.

We are trying to fix all this and this web site is here to organize this effort.

When we have finished this effort, **mapping will be easier**, because there will be only one canonical way of tagging multipolygons. Editors can take this into account and help mappers in better ways. And it will make **using the data easier and faster** because the programs (such as Osm2pgsql and Osmium) converting OSM data into multipolygons for rendering or other uses can be simplified. It will also make it easier to detect mapping errors **raising the quality of the OSM data**.

Background information

Read this for many more details:

- Background on (multi)polygons
- Typical problems with OSM multipolygons
- Frequently Asked Questions (FAQ)
- Some notes about rendering

Start fixing things

There are many ways of helping with this effort depending on your OSM skill level and time. Read this to get you started fixing things.

Old-style multipolygon comparison map

To see what the map would look like if we removed *old style* multipolygons, you can use our comparison map.

There are some areas in central Europe with a lot of (or larger) *old style* multipolygons. Some other clusters can be seen here: Finland, Georgia, USA, New Jersey, USA, Romania, around Toronto, Canada.

OSM (Multi)Polygon Statistics

The statistics help us track what has been done and what still needs to be done.

Downloads

For those who want to dive deeper into the data we offer several downloads. Files are updated daily from the current planet. The timestamp file contains the time of the last update in ISO format.

areas.db
: Spatialite database containing information about all problems found in OSM areas. (About 1 GByte). Get this QGIS project file and put it in the same directory as the `areas.db` file and run `qgis area-errors.qgs`.

area-stats.db
: Sqlite database containing daily statistics on areas in OSM. (Small file)

old-style.osm.pbf
: OSM PBF file containing only old-style multipolygons, ie relations tagged only with `type=multipolygon` with all dependant ways and nodes. (About 270 MBytes)

old-style-mp-ways.zip
: A shapefile with all ways contained in the file above, so these are the geometries of all ways that are members of old-style multipolygons. (About 410 MBytes)

broken-polygons.osm.pbf
: OSM PBF file containing all ways and multipolygon relations that are broken in some way. (About 300 MBytes)

Contact

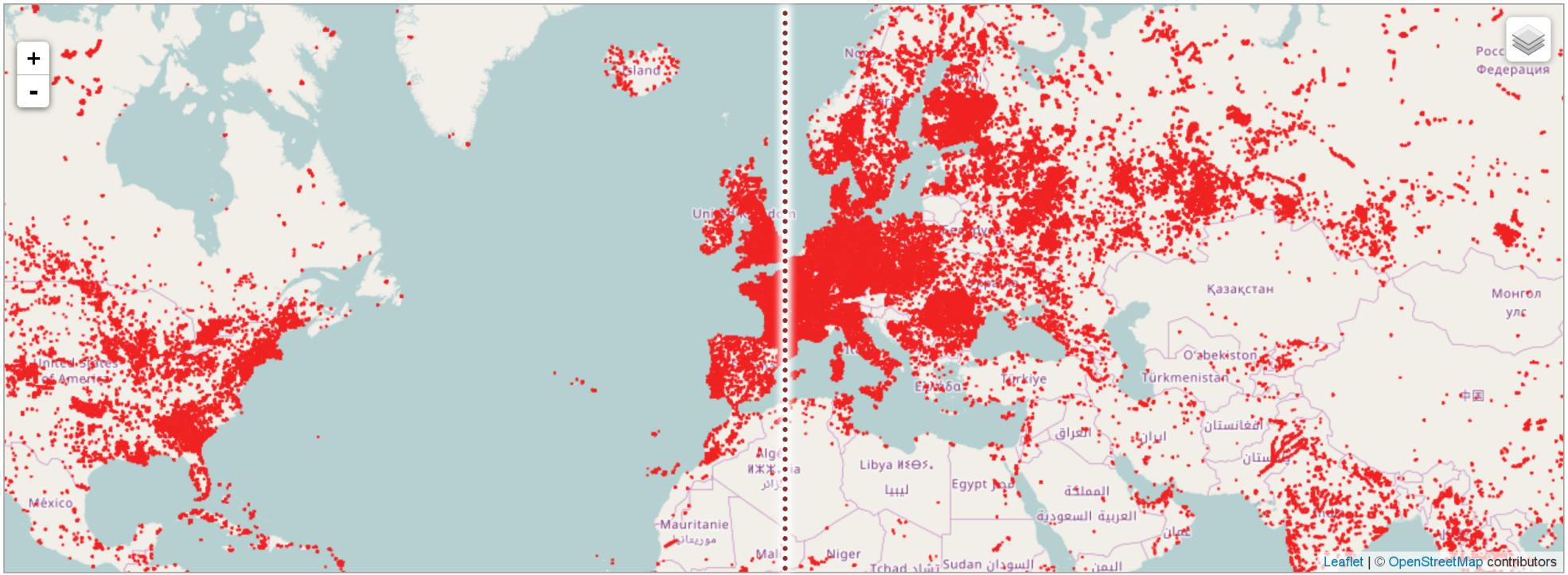
If you have any questions or want to contribute in any way, here are some ways to get in contact:

area.jochentopf.com/map

↖ Fixing Polygons in OSM

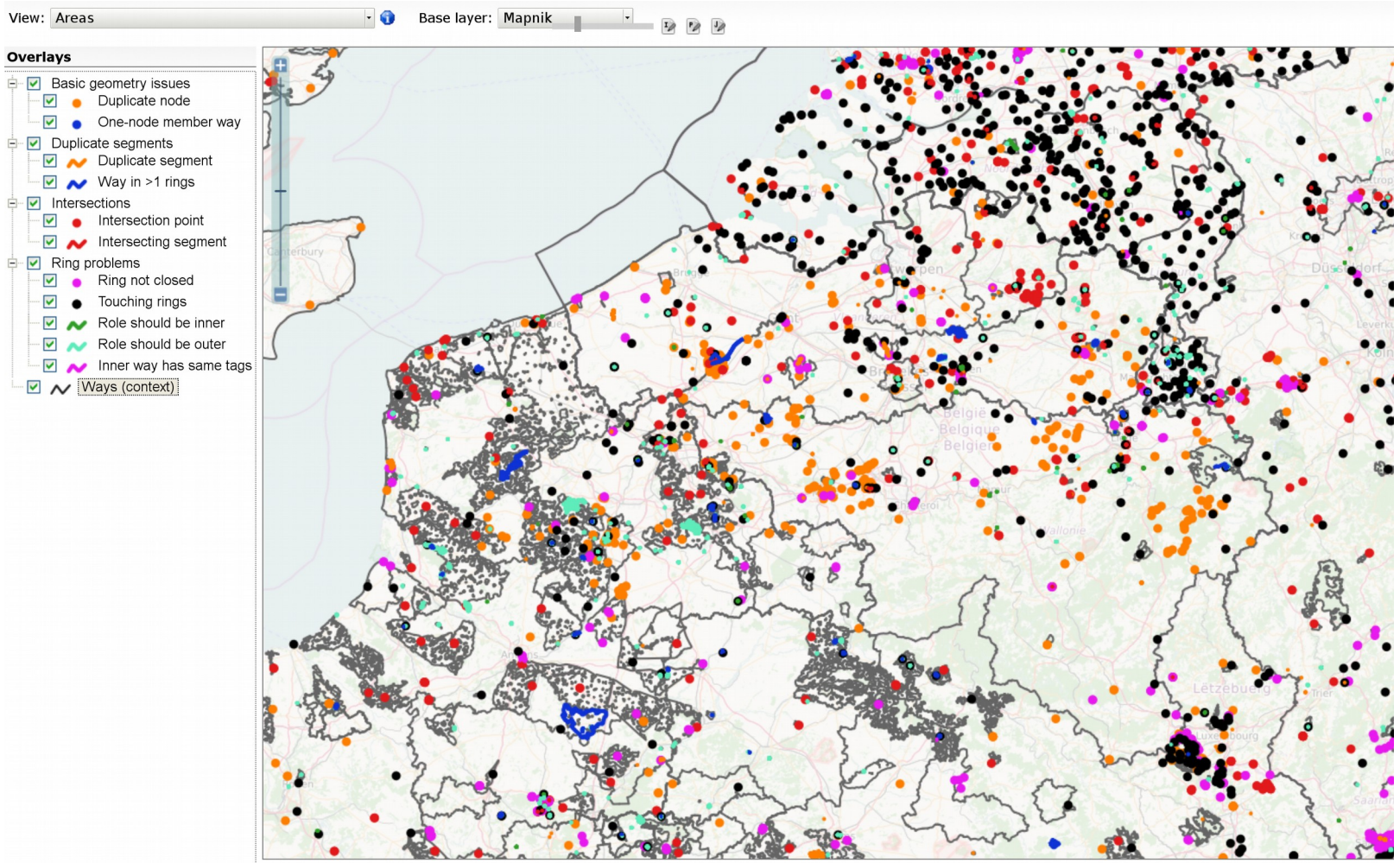
iD JOSM

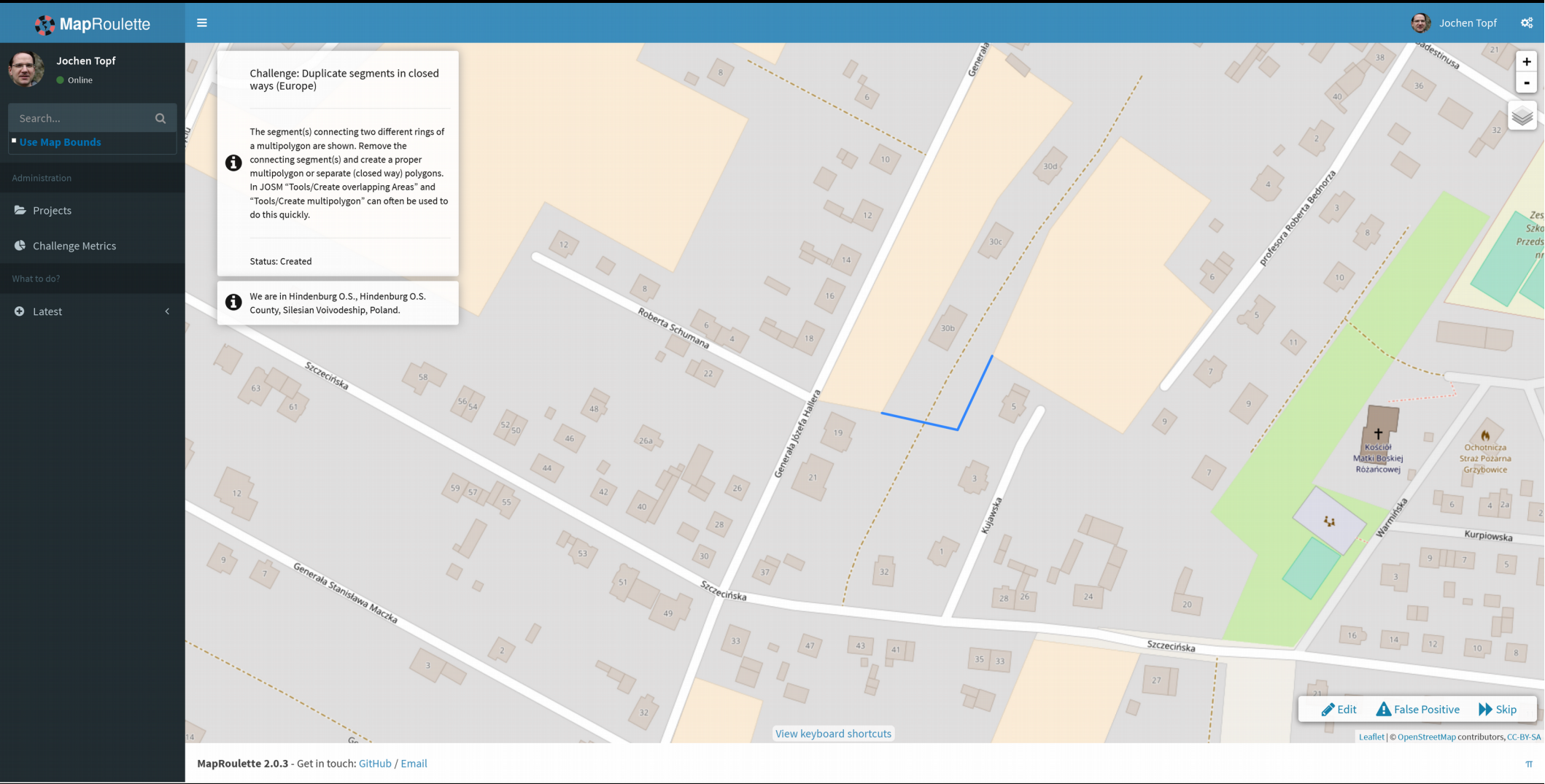
Original OSM map ← **Comparison map** → No *old style* multipolygons



On the left side the original OSM map tiles from www.openstreetmap.org. On the right side the same map but with *old style* multipolygons ignored, ie. those multipolygon relations where the relation doesn't have any tags, but the tags are on the outer ways. You can ignore differences with labels and highway shields, they are caused by different software versions. Move the slider handle above the map to position the dividing line.

tools.geofabrik.de/osmi/?view=areas




MapRoulette
Jochen Topf
Online
Search...
Use Map Bounds
Administration
Projects
Challenge Metrics
What to do?
Latest
Jochen Topf
Challenge: Duplicate segments in closed ways (Europe)
The segment(s) connecting two different rings of a multipolygon are shown. Remove the connecting segment(s) and create a proper multipolygon or separate (closed way) polygons. In JOSM "Tools/Create overlapping Areas" and "Tools/Create multipolygon" can often be used to do this quickly.
Status: Created
We are in Hindenburg O.S., Hindenburg O.S. County, Silesian Voivodeship, Poland.
Roberta Schumana
Szczecińska
Generała Józefa Hallera
Kujawska
profesora Roberta Bednorza
Generała Stanisława Maczka
Kościół Matki Boskiej Różańcowej
Ochotnicza Straż Pożarna Grzybowice
Warmińska
Kurpiowska
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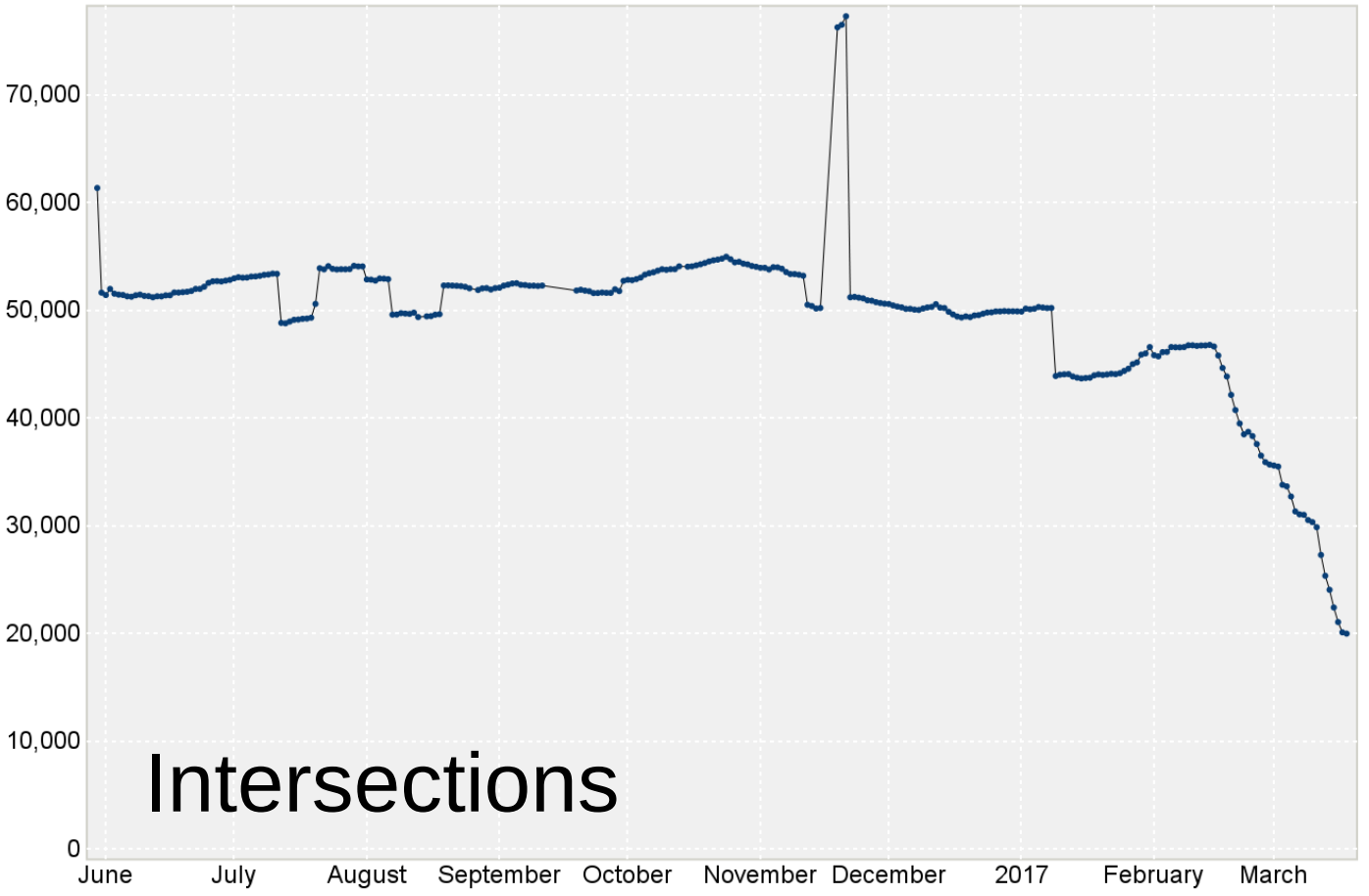
Leaflet | © OpenStreetMap contributors, CC-BY-SA
MapRoulette 2.0.3 - Get in touch: GitHub / Email

area.jochentopf.com/stats



QA-Werkzeuge

OSM Inspector ✔

Maproulette ✔

Osmose ✔

JOSM Validator ✔

THE END

http://area.jochentopf.com/

github.com/osmlab/fixing-polygons-in-osm

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