GENERALISING UNUSUAL MAP THEMES FROM OPENSTREETMAP

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OpenStreetMap Unusual Data

Airports Generalisation

Railways Generalisation

Heterogeneity and Orchestration

Conclusion and Further Work
Unusual map themes

- Railways
- Sports centers
- Electricity networks
Unusually detailed features

OSM

Airports

Railways

Heterogeneity

Conclusion

OpenStreetMap Unusual Data

Unusually detailed features

Airport

Park

Harbour
Modelling airports

- Terminal
- Apron
- Taxiway
- Runway
- RunwayArea
- RunwayLine
- TaxiwayArea
- TaxiwayLine
**Modelling airports**

- **Airport**
  - **Runway**
  - **Terminal**
  - **Apron**
  - **Taxiway**
    - **RunwayArea**
    - **RunwayLine**
    - **TaxiwayArea**
    - **TaxiwayLine**
Collapse Runway areas
Collapse Taxiway areas

1. Identify neighbourhoods between taxiway areas
2. Compute TIN middle axis for each polygon
3. Filter, simplify and join middle axes

(several objects in OSM)
Airports Generalisation

- Select Taxiway lines

Before generalisation

After generalisation
AIRPORTS GENERALISATION

Results at 1:25k

OSM

Airports

Railways

Heterogeneity

Conclusion

Vienna

Rio

Vienna

Rio
All tracks are captured in OSM
Railways Generalisation

- All tracks are captured in OSM

Typify sidetracks in stations

Collapse parallel tracks
Parallelism detection

- Finds follow relations (Touya et al 2012)
Parallelism detection

- Finds *follow* relations (Touya et al 2012)

- Use a buffer to find parallel neighbours
Compute the middle line and connect where line meet or where parallelism ends.
**Sidetracks Typification**

**Typification principles**

- Identify sidetracks (tags “railway” & “service”) and group by connexity
- Compute “Strokes” inside each group
- Strokes are sorted by descending order of length
- Strokes too close to a long stroke are removed
- Too short strokes are removed
- Restore connectivity if broken

**Longest stroke**
Result at 1:25k

Before generalisation

After generalisation
HETEROGENEITY AND ORCHESTRATION

- Heterogeneity of quality and LoD

- Orchestration of operators should be guided by LoD/quality in addition to context
CONCLUSION

- OSM diversity requires new algorithms

- Algorithms proposed for airports and railways

- Generalisation orchestration should consider LoD

- Implemented in GeOxygene open source platform
FURTHER WORK

- Try LoD oriented orchestration

- Improve the proposed methods
  - e.g. identify sidetracks even when tags are wrong

- Generalise other unusual themes
THANKS FOR YOUR ATTENTION
ANY QUESTIONS?

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http://oxygene-project.sourceforge.net/