RIDIR Report

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OGC specification

- OpenGIS Implementation Standard for Geographic information - Simple feature access[1]
  - Section 6.1.11 Polygons: Clarify format for polygons with holes.
    i.e. POLYGON (
    (exterior ring), (interior rings)*
)
  - Section 6.1.14 Multipolygons: Clarify the format for multipolygons.
    i.e. MULTIPOLYGON (
    ((polygon 1)),
    ((polygon 2)),
    ((polygon n))*
)

[1] http://www.opengeospatial.org/standards/sfa

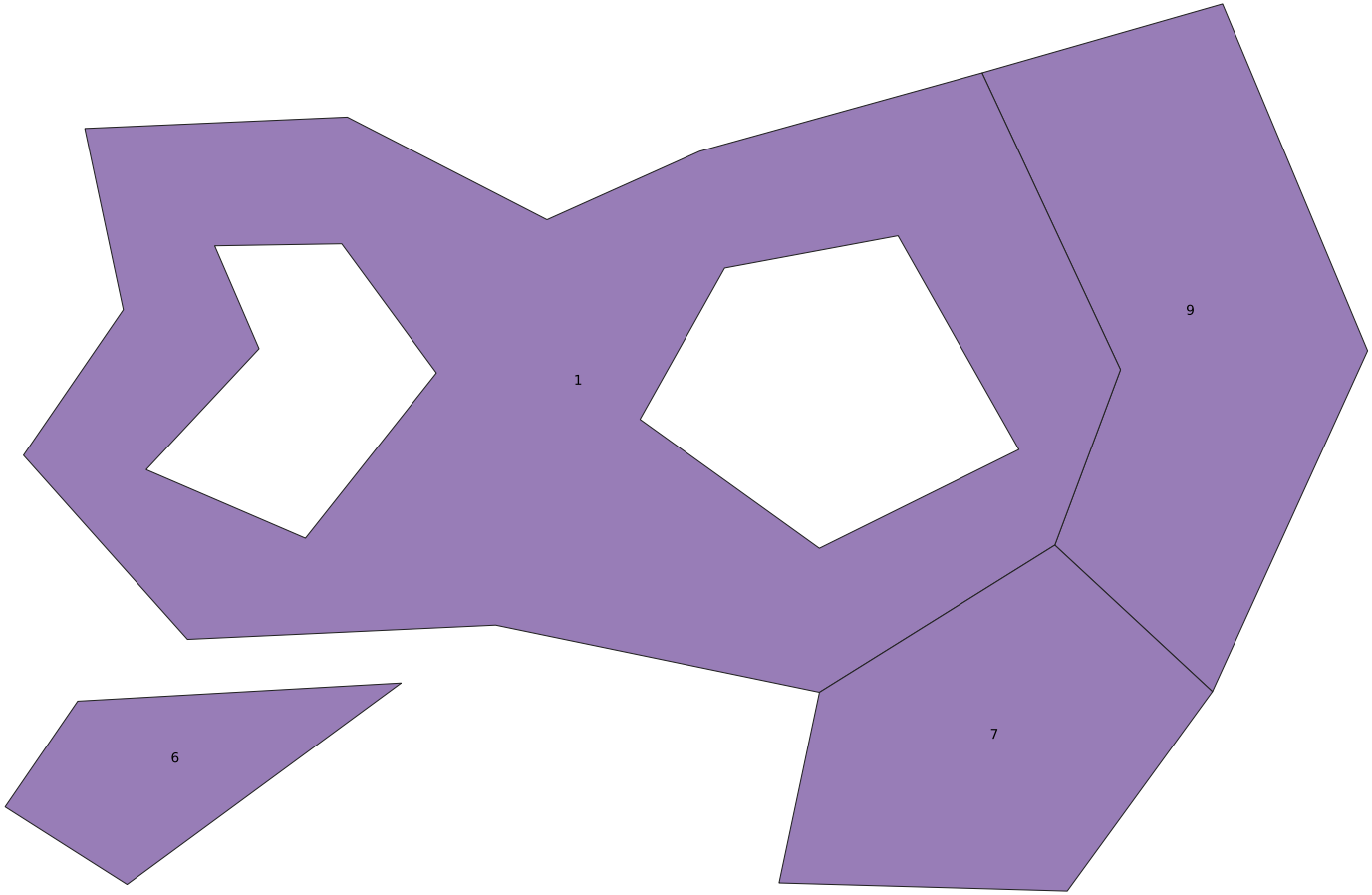
OGC specification

- OGC specification also provides methods to get number of holes and geometries and check if a feature is simple and valid.
- JTS library (GeoSpark) implements the OGC implementation.
- I have coded a simple **GeometryChecker** routine to obtaing info about the input layers.

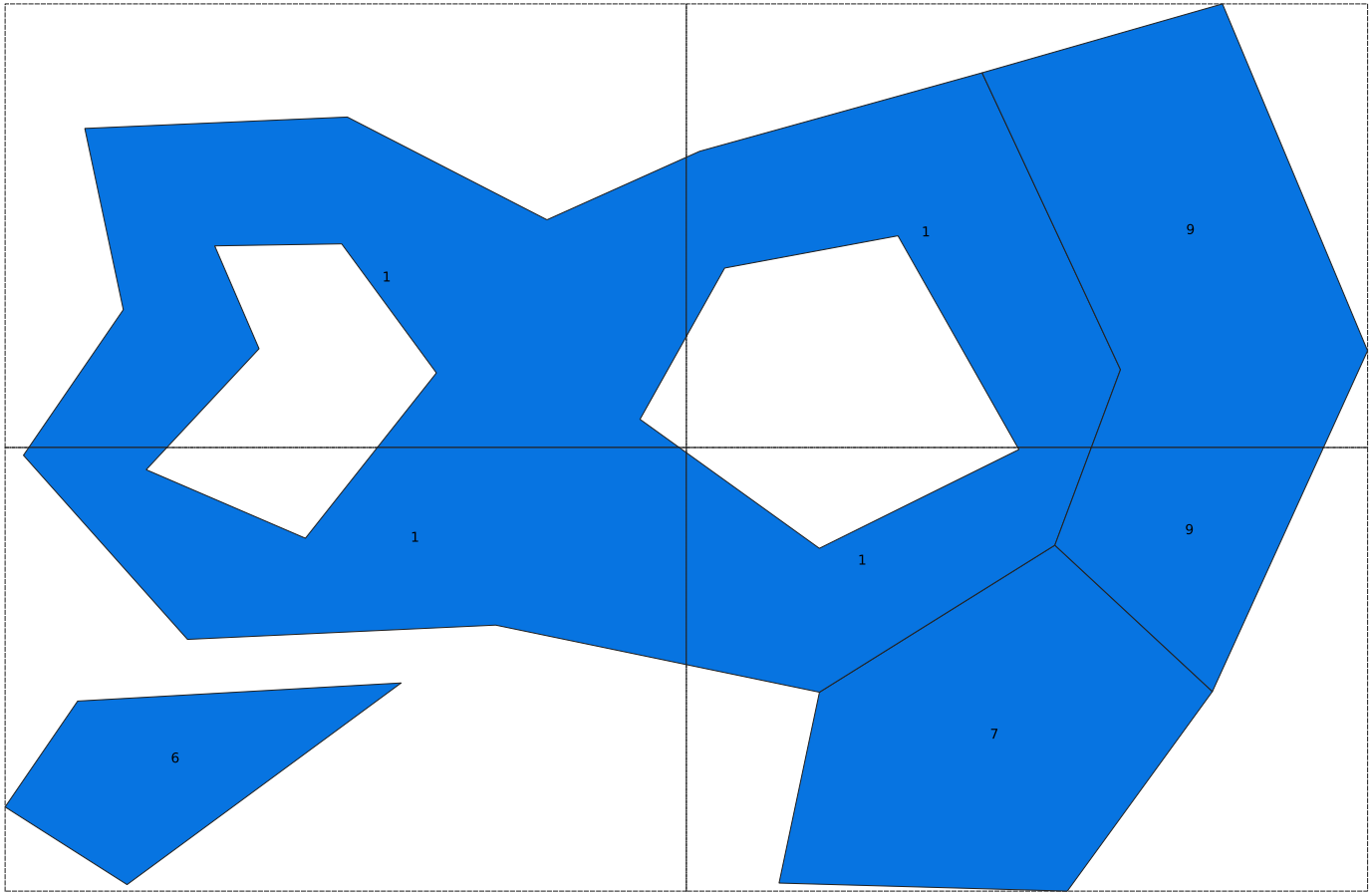
Dealing with holes

- With the methods provided by JTS it was easier to track the holes and which polygon their belongs to and adjust the DCEL accordingly.
- First tried with demo polygons in sequential and parallel approaches. Then tested with a bigger dataset (California districts).
- The output is consistent with the expected results.

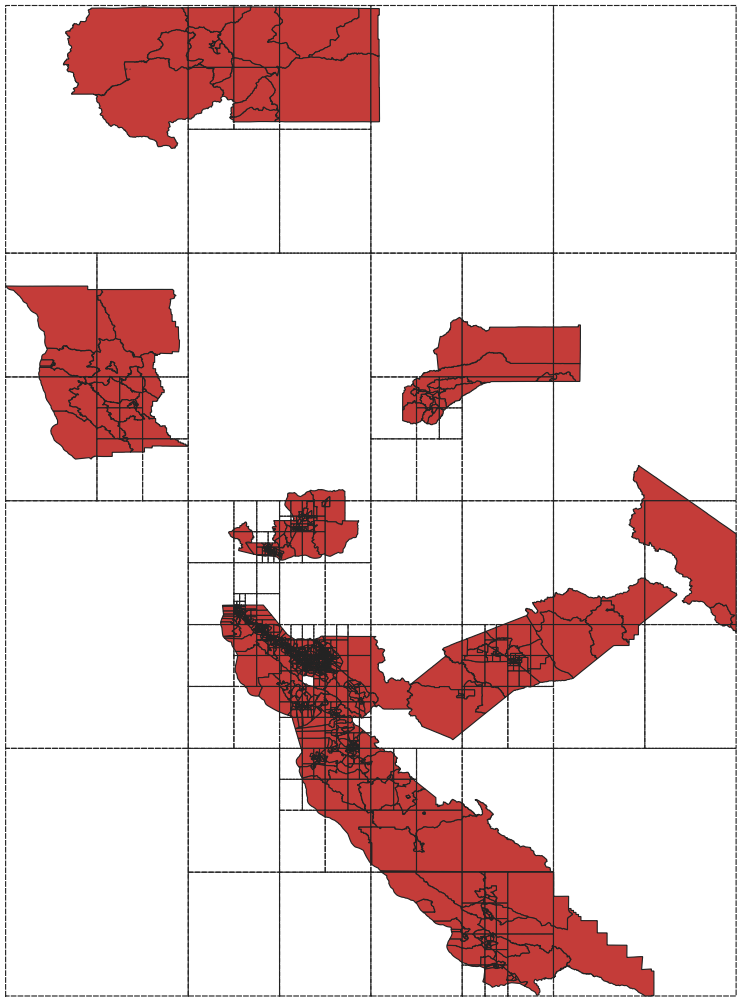
Validation - Demo sequential



Validation - Demo parallel



Validation - CA_sample parallel



What is next?

- Fix bug during reading of WKT features.
- Check support for multipolygons.
- Integrate changes in merged DCEL.
- Test with bigger datasets.