# Parallel DCEL Construction Report

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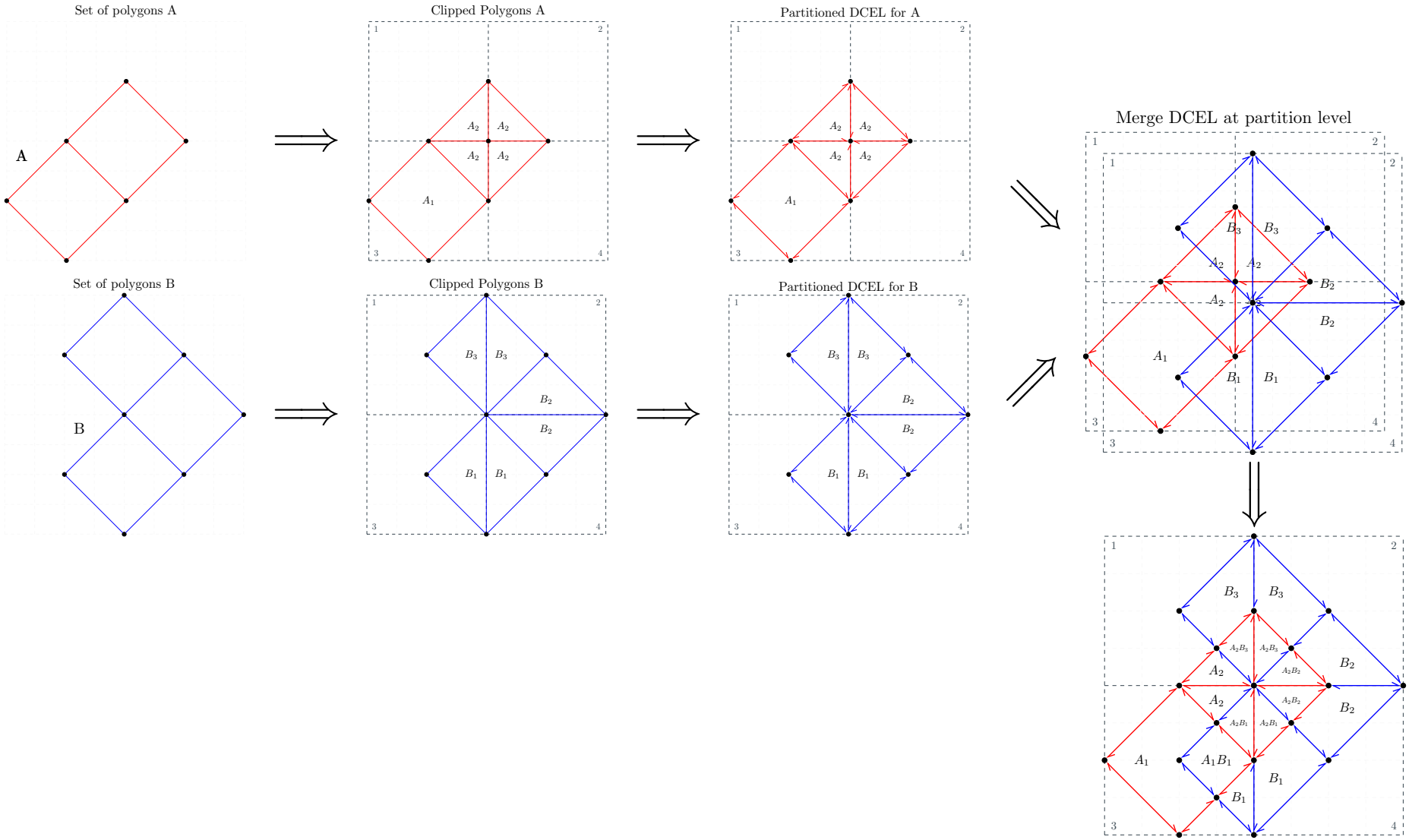
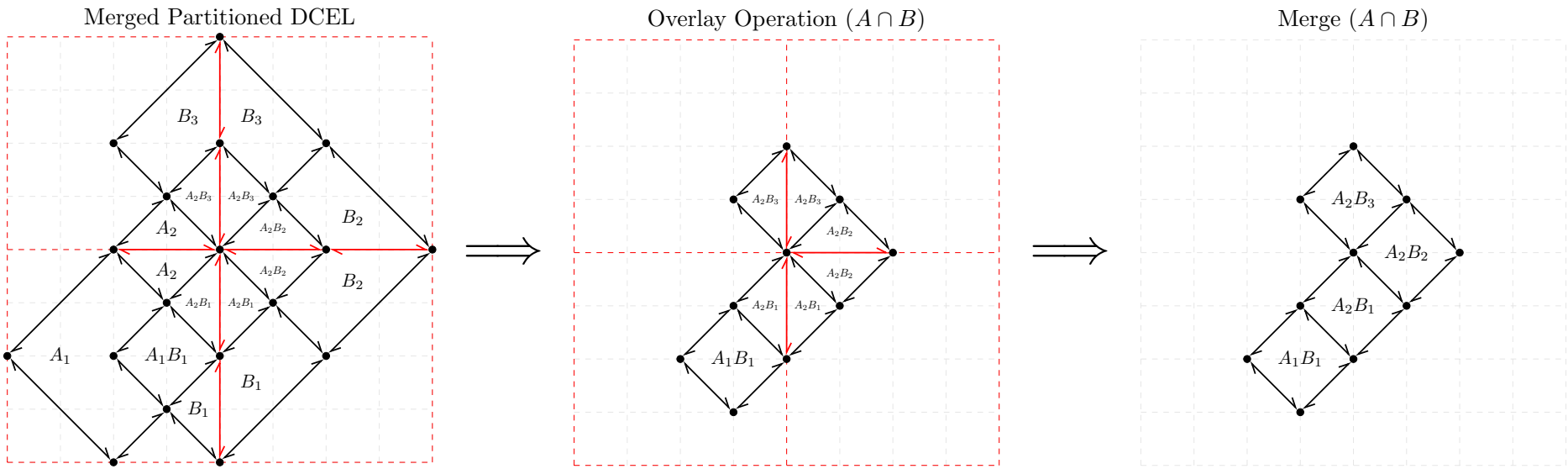
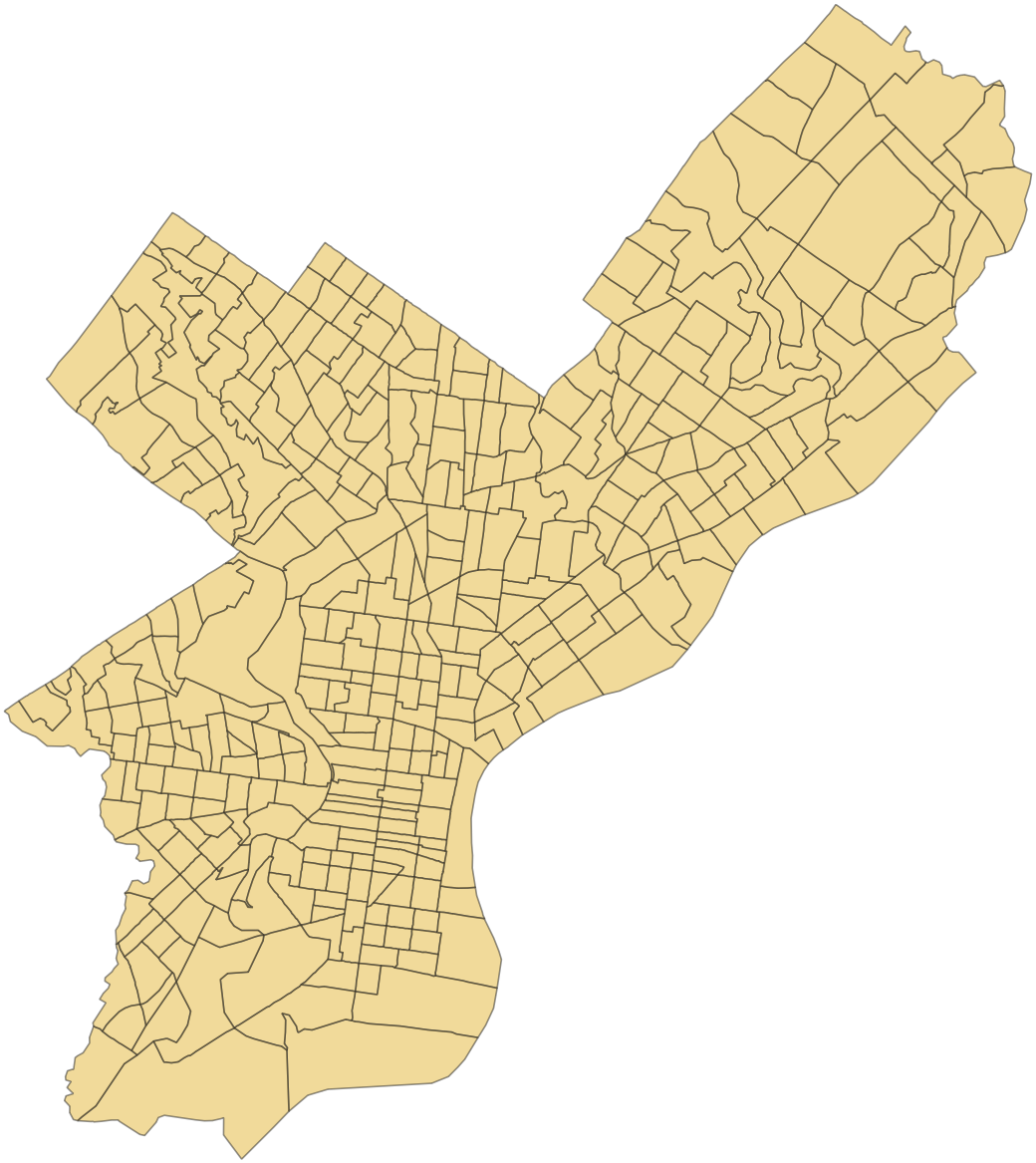
# Parallel DCEL construction



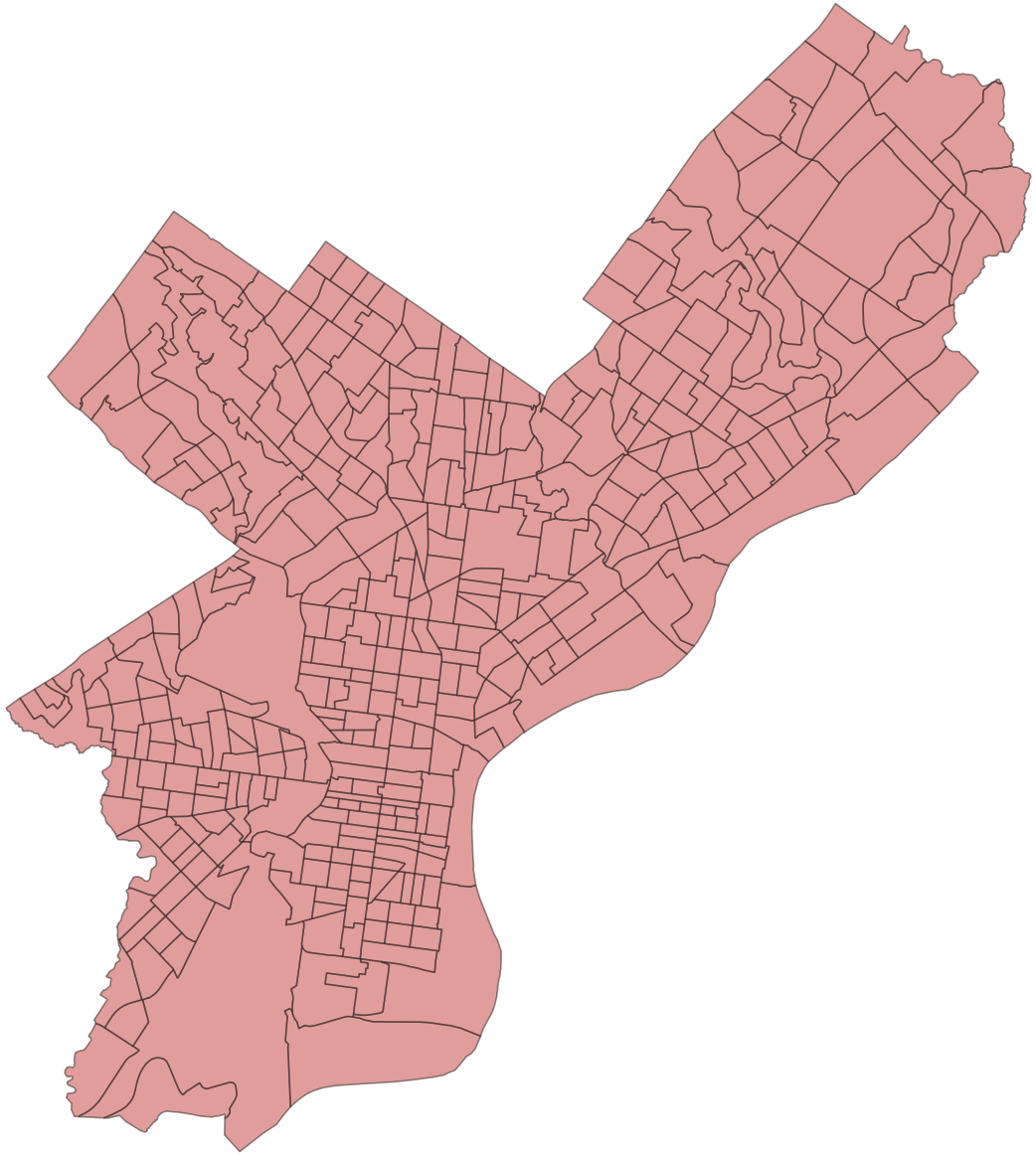
# Parallel DCEL operations



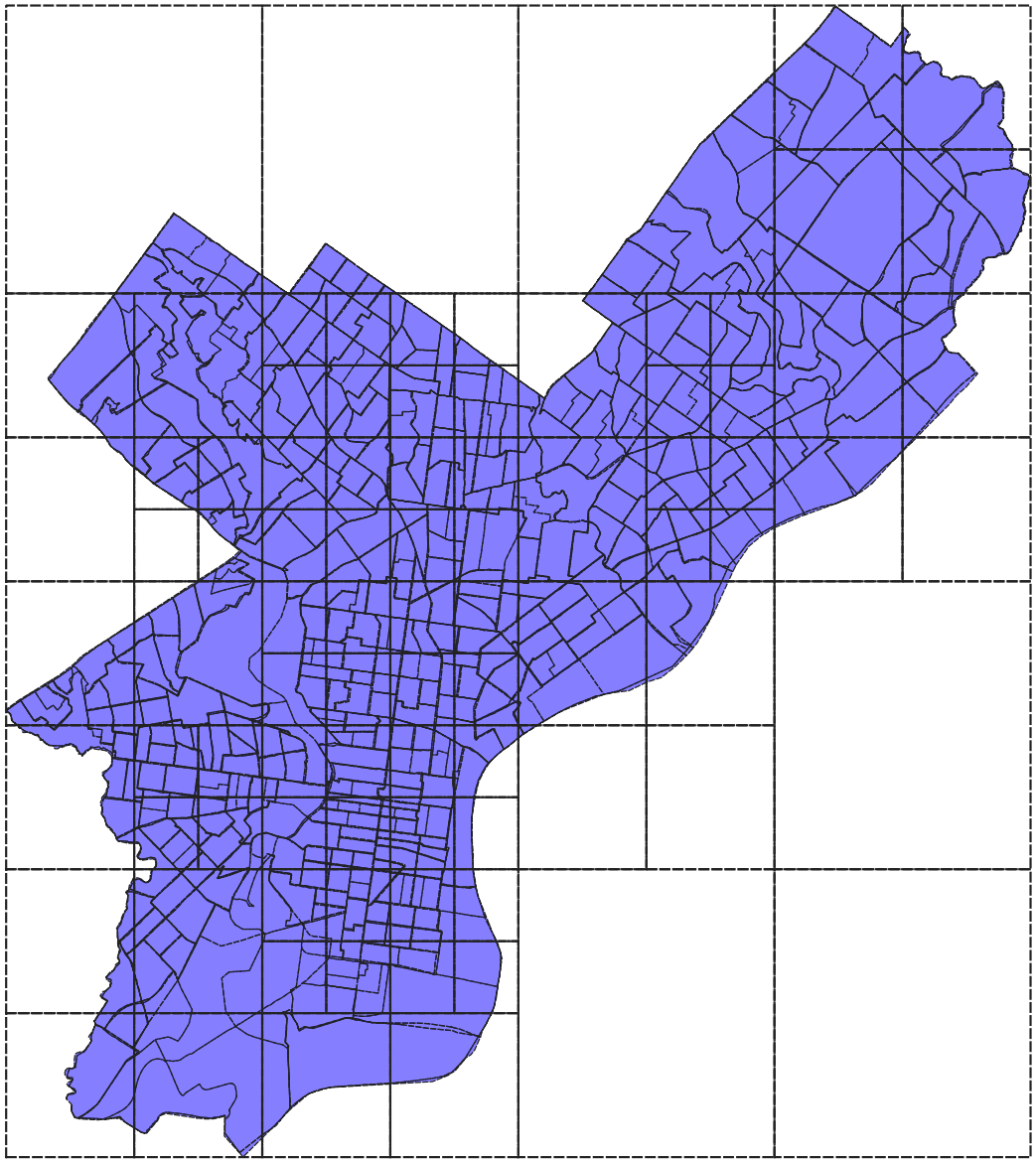
# Phili test [2000]



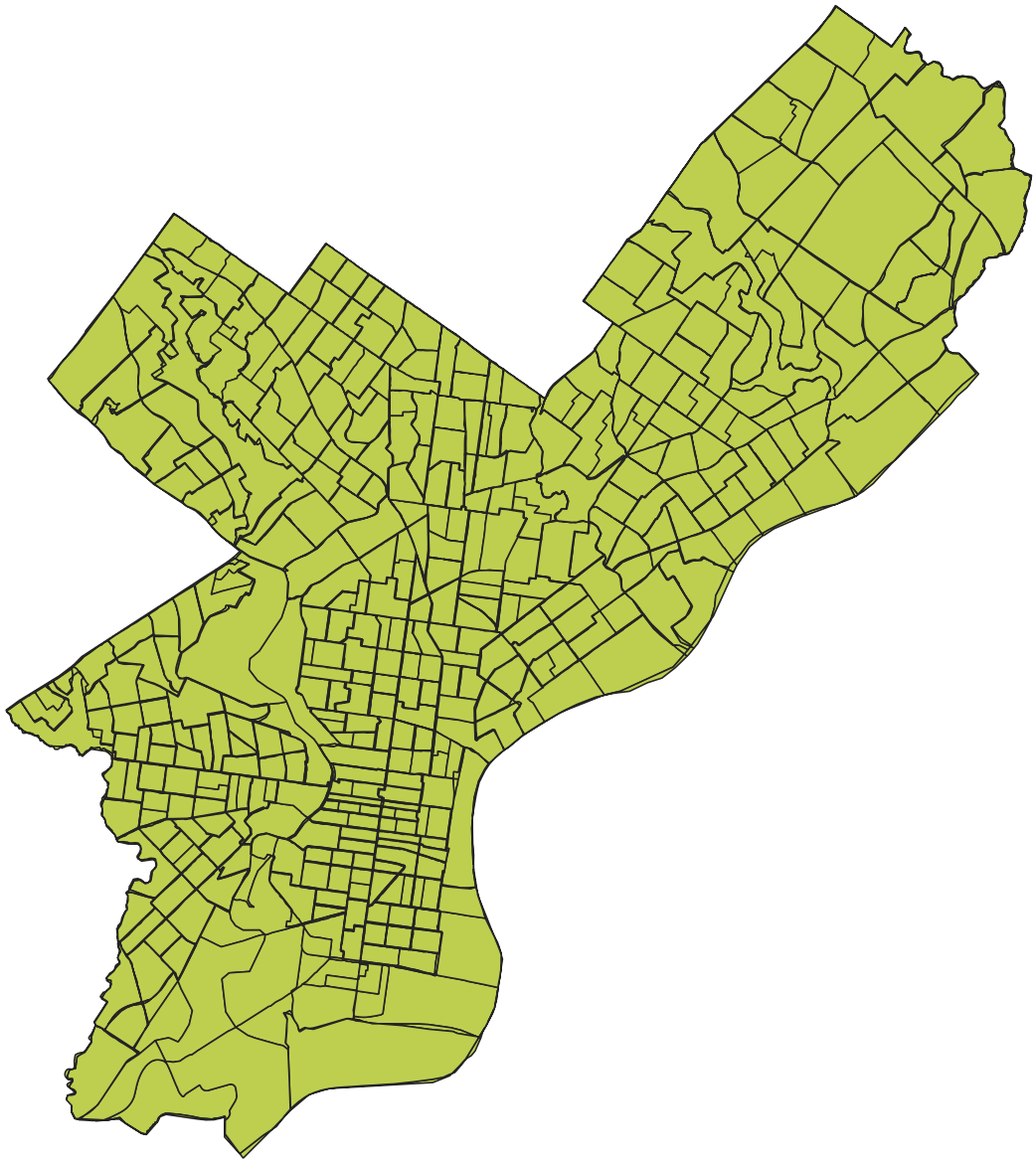
# Phili test [2010]



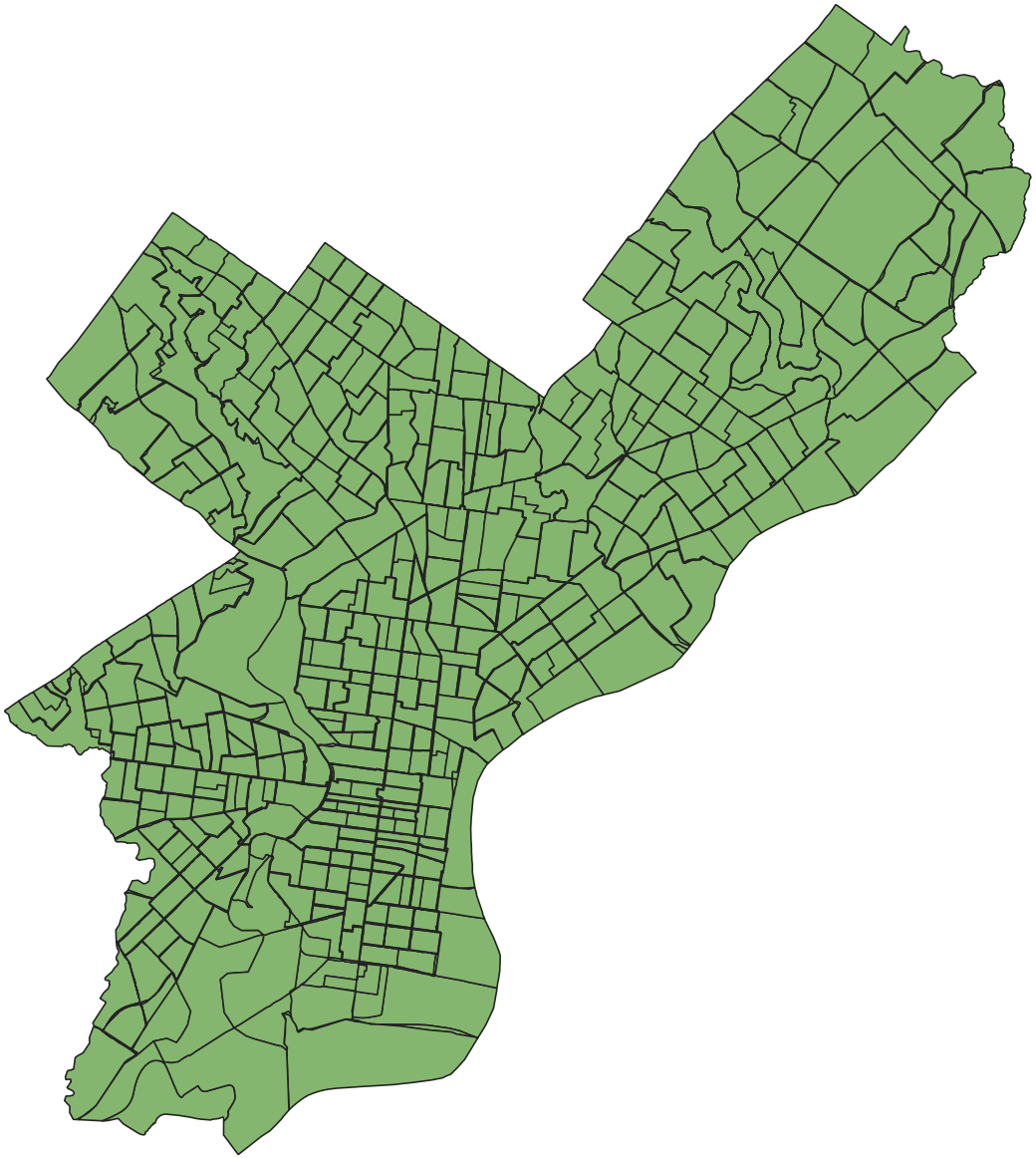
# Phili test [Merged DCEL]



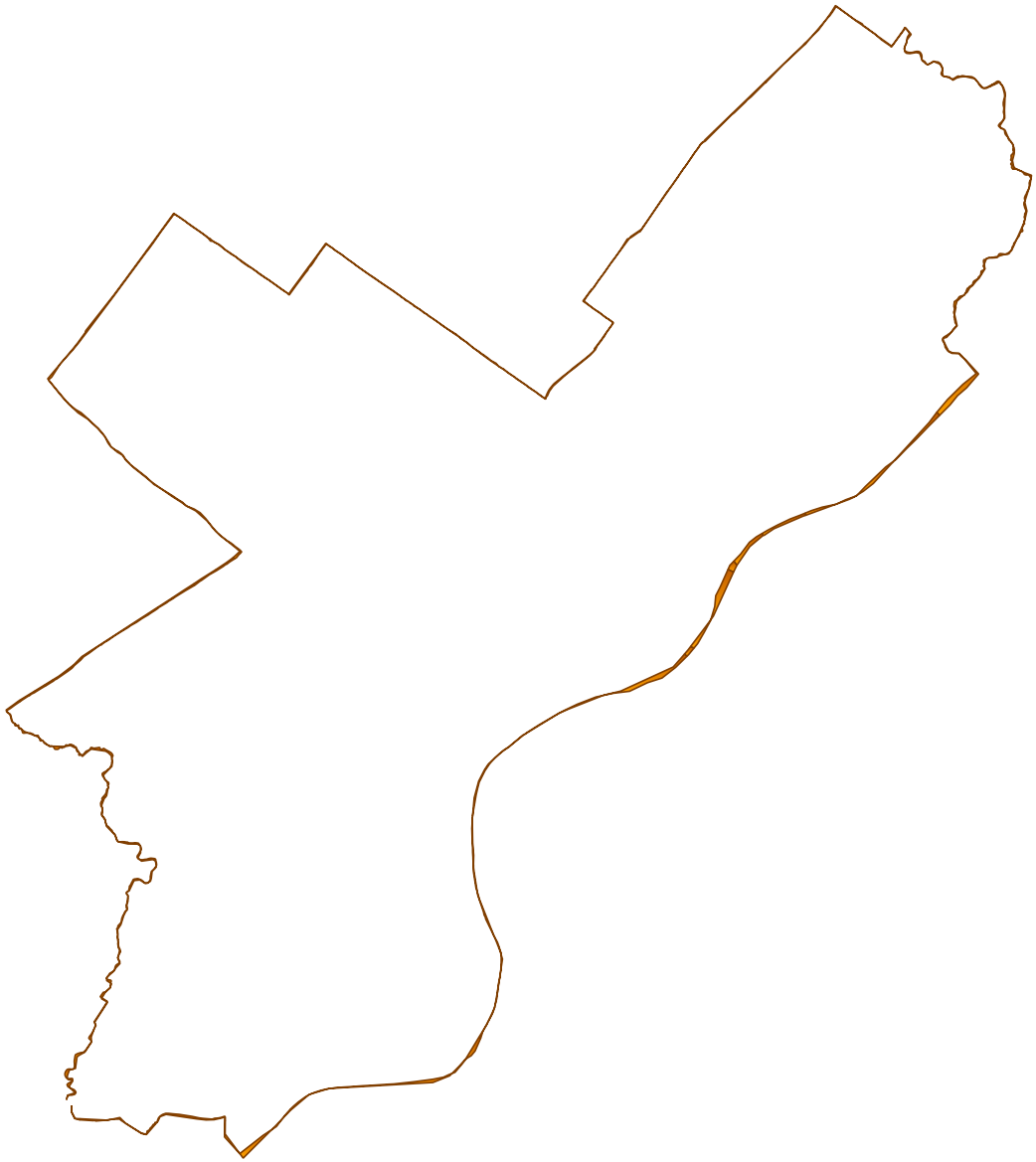
# Phili test [Union]



# Phili test [Intersection]



# Phili test [Symmetric difference]



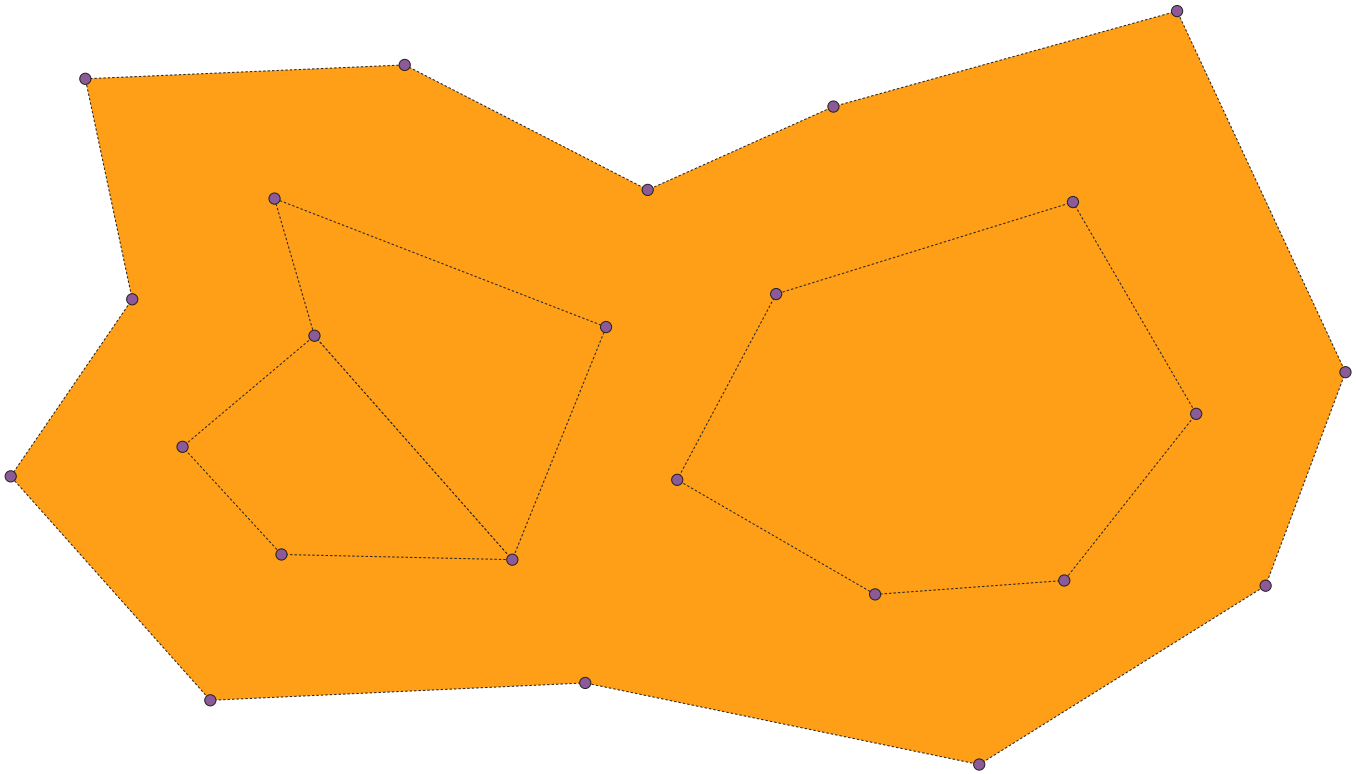
# Phili test [Difference $(A \setminus B)$]

# Phili test [Difference $(B \setminus A)$]

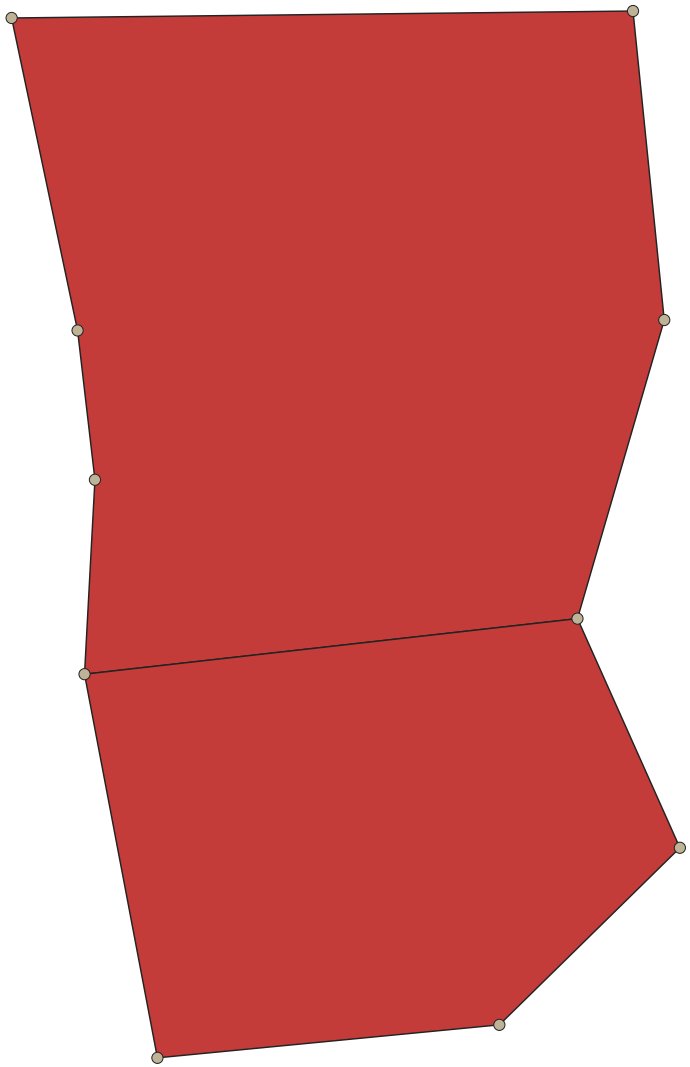
# Phili test [Performance]

| | Parallel DCEL | QGIS |
|---|---|---|
| Partitioning | 0.55 | - |
| Clipping | 1.96 | - |
| Local DCEL | 2.68 | - |
| Merged DCEL | 1.62 | - |
| Union | 0.89 | 7.41 |
| Intersection | 0.60 | 4.56 |
| Symmetric | 0.43 | 3.84 |
| Difference A | 0.34 | 1.68 |
| Difference B | 0.39 | 2.19 |
| Total | 9.46 | 19.68 |

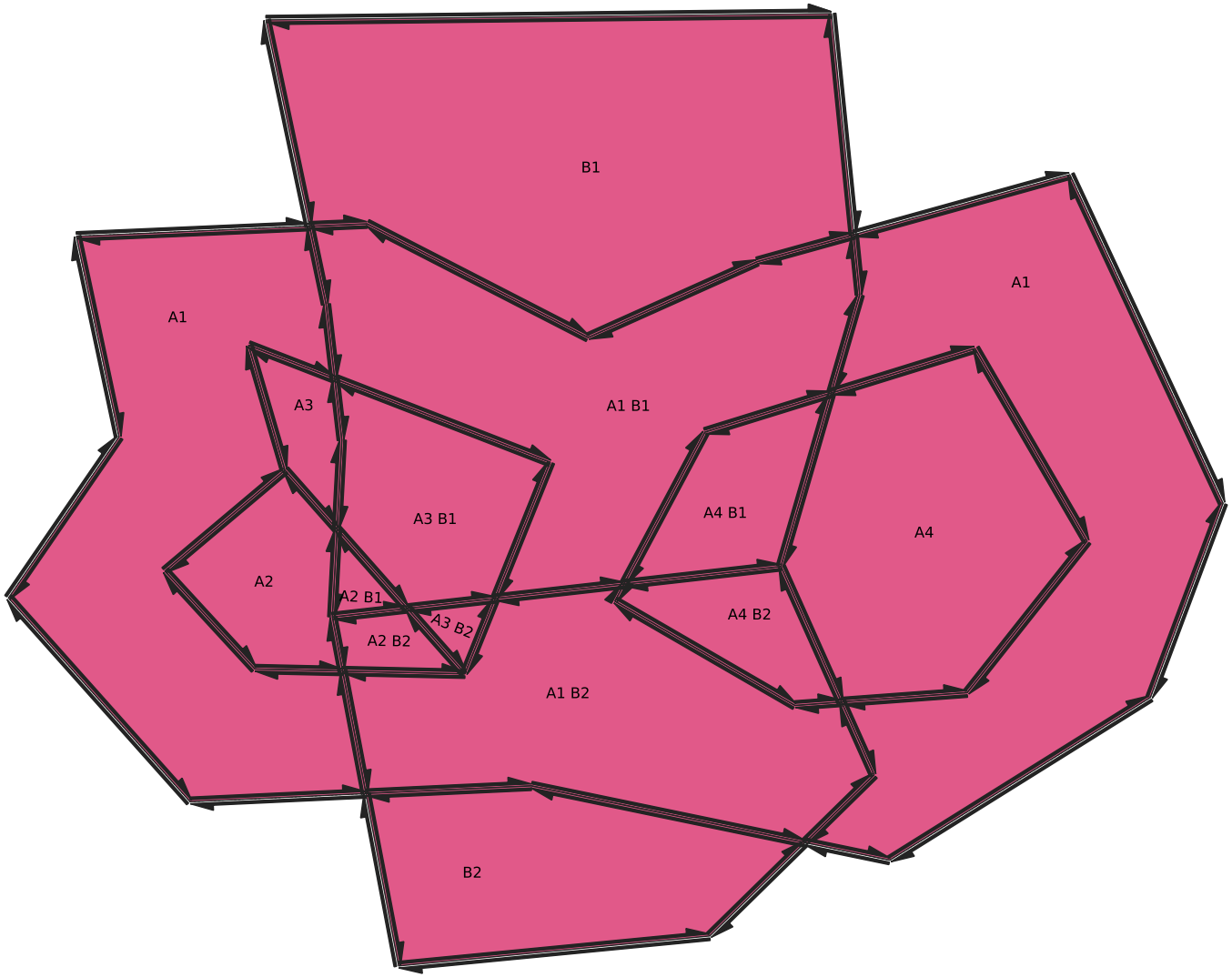
# Working with holes



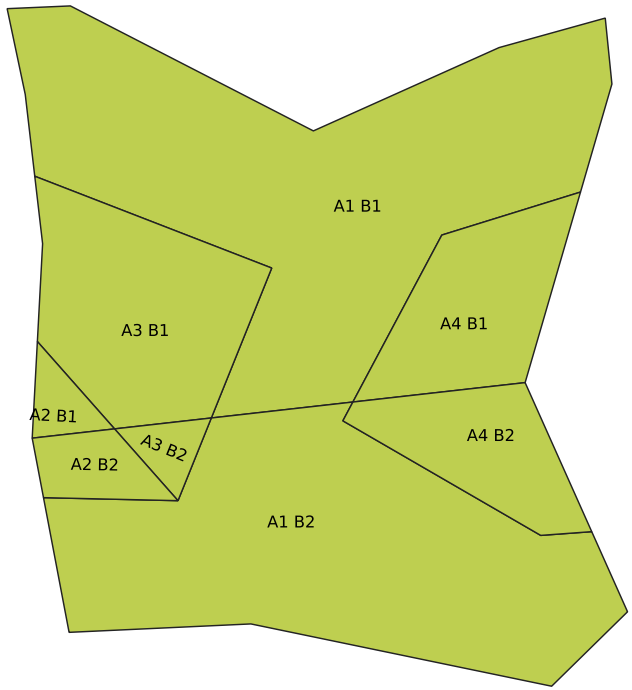
# Working with holes



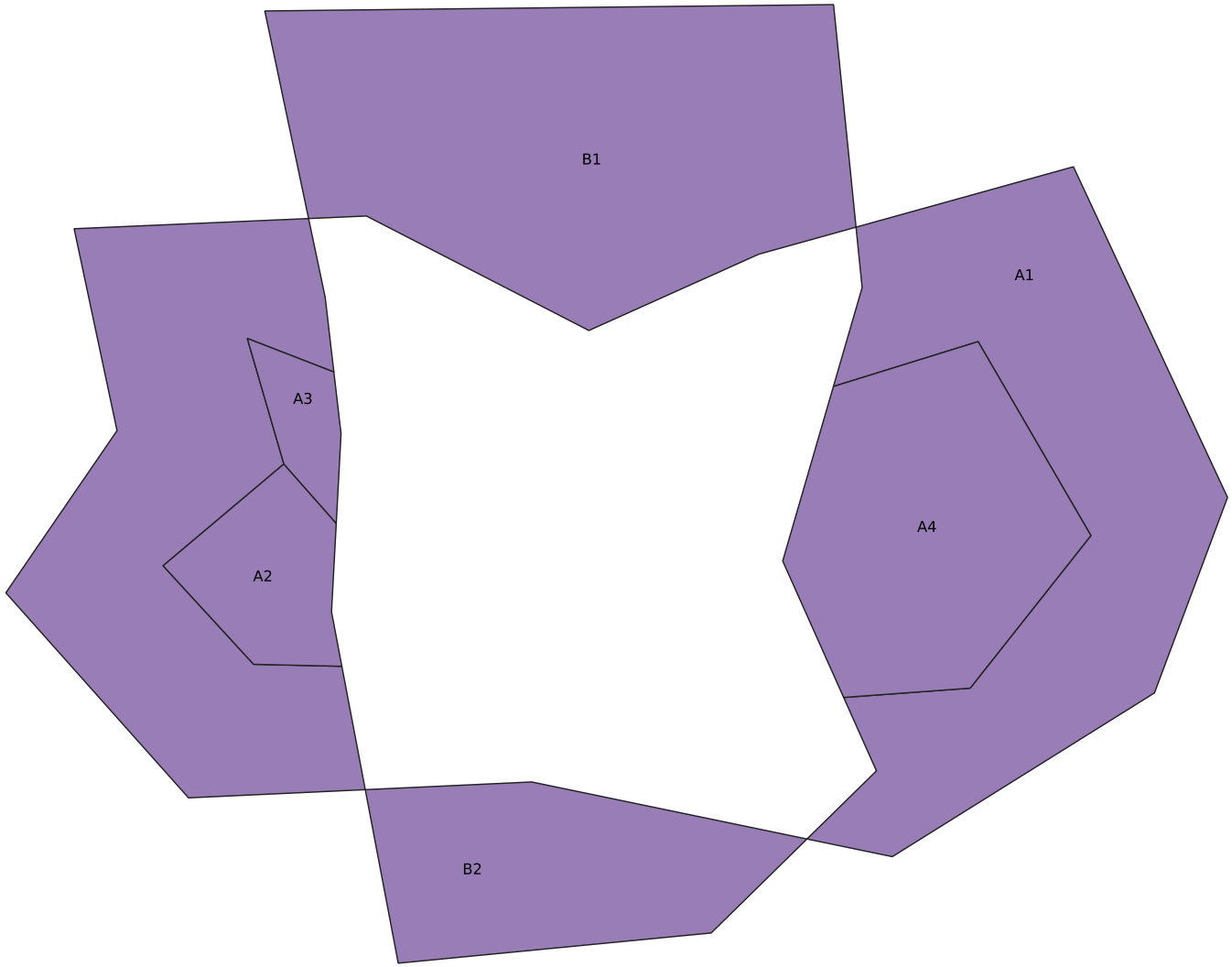
# Merged DCEL



# Intersection



# Symmetric difference



# What is next...

- Perform more tests with holes and multipolygons.
- Perform experiments with larger datasets.