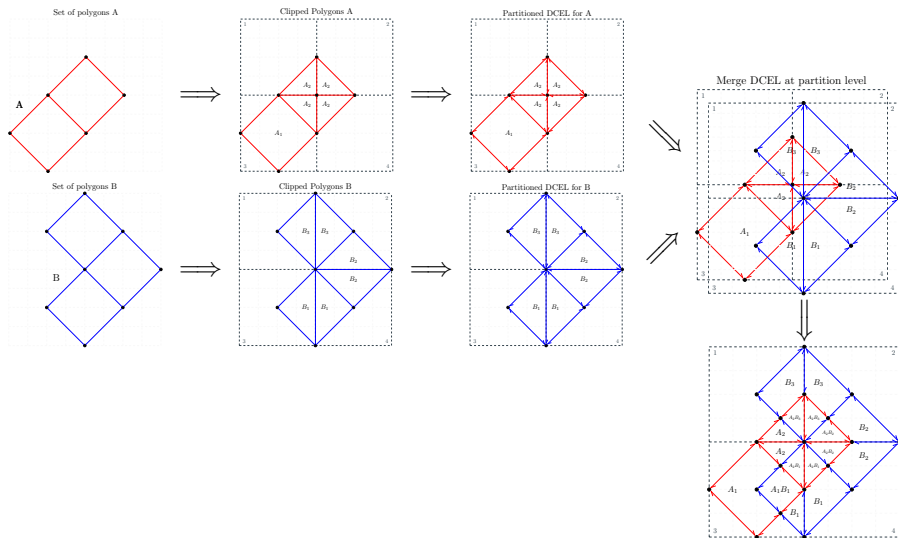# Parallel DCEL Construction Report

Andres Calderon
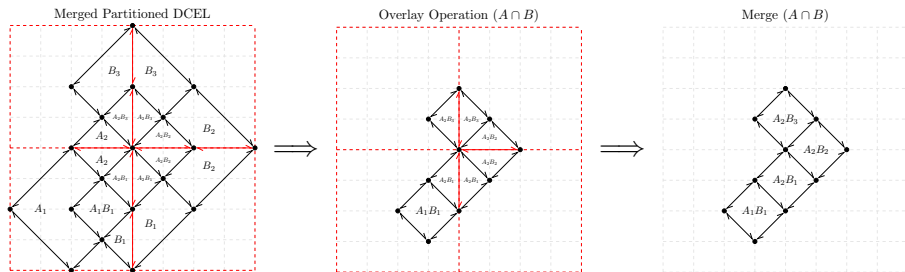
University of California, Riverside

August 28, 2019
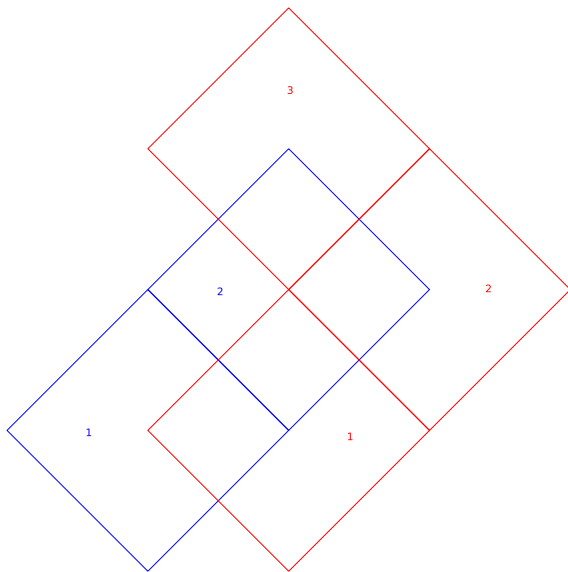
Parallel DCEL construction

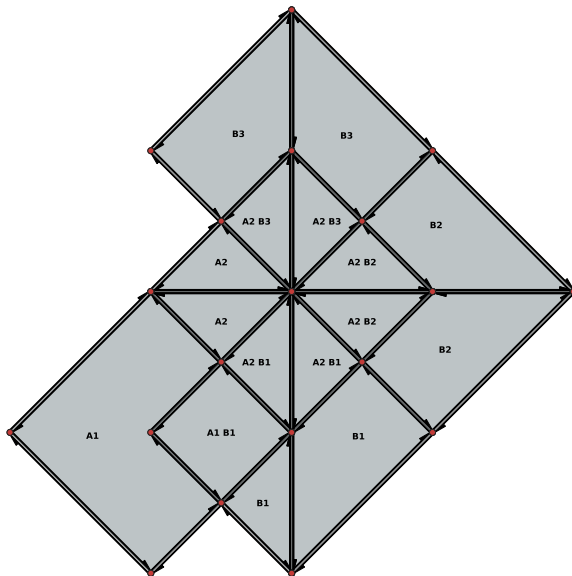# Parallel DCEL operations

Merged Partitioned DCEL
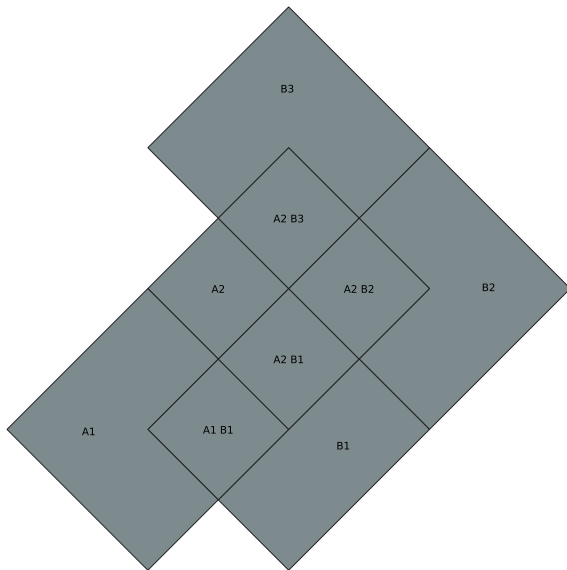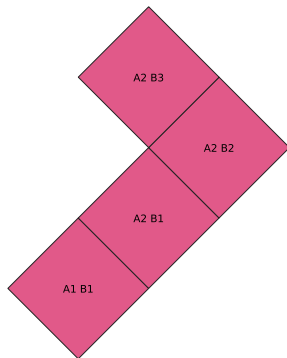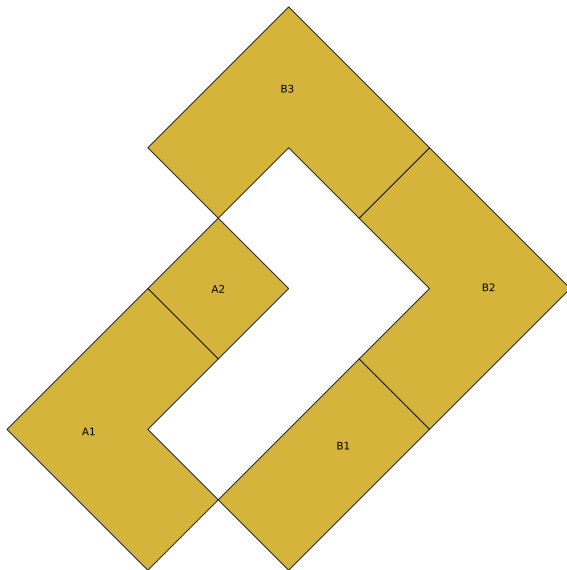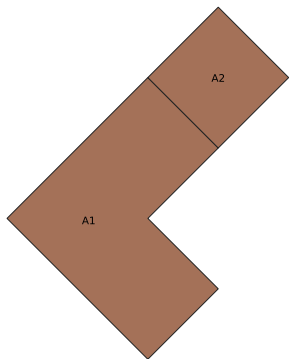
Overlay Operation $(A \cap B)$

Merge $(A \cap B)$

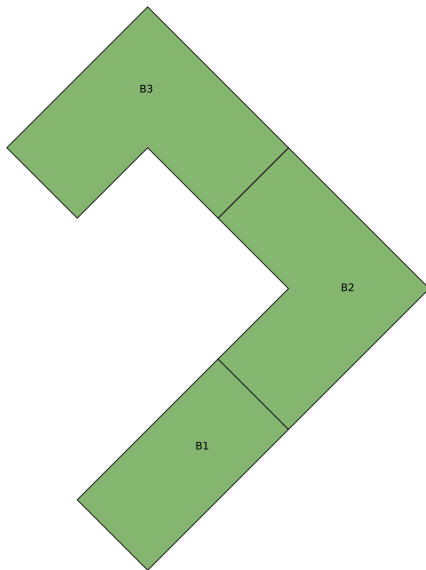# Demo example

Demo example

Demo example

Demo example

Demo example

Demo example
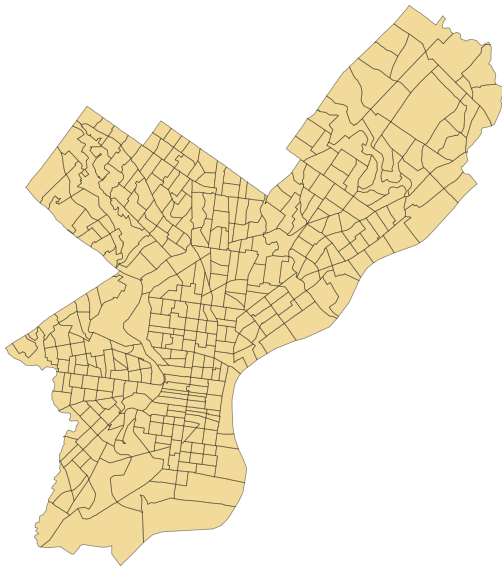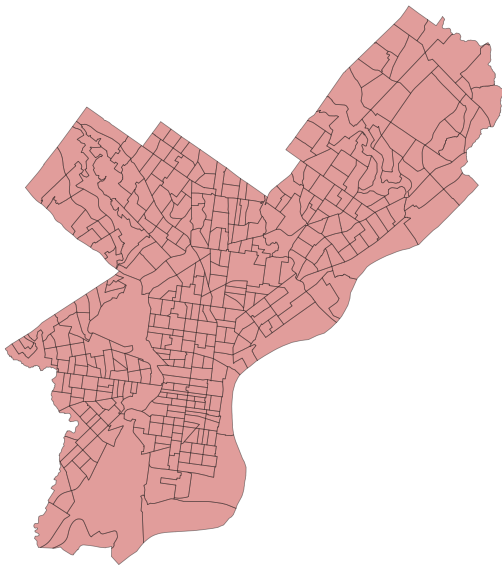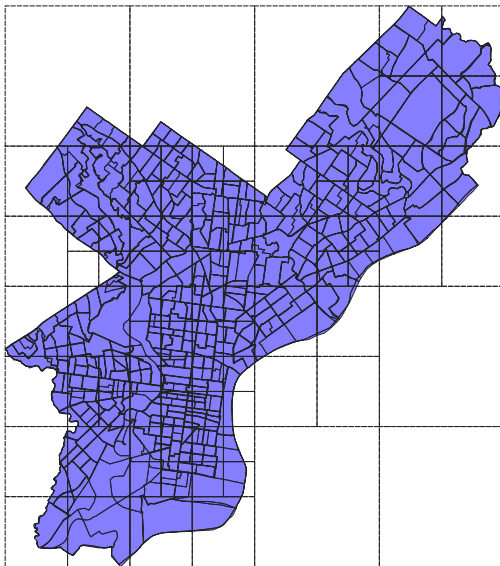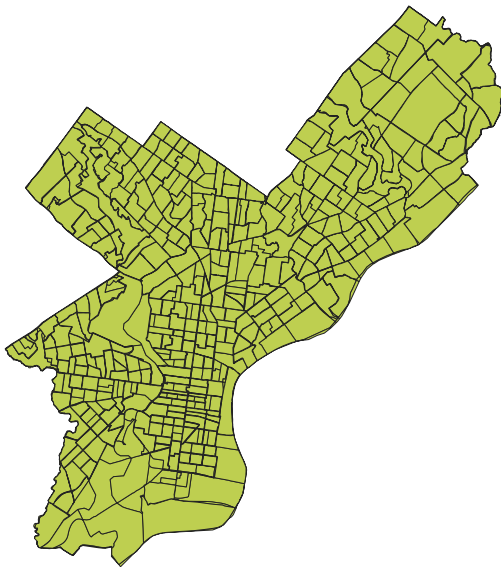
Demo example
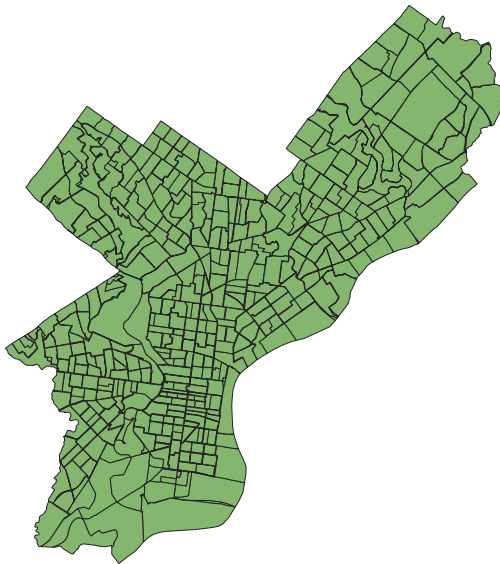
Phili test [2000]

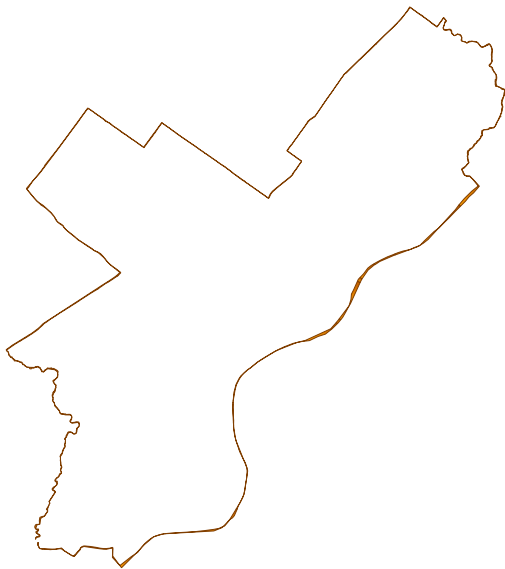# Phili test [2010]

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

What is next...

▶ Work on holes and multipolygon strategy.
▶ Perform experiments with larger datasets.