

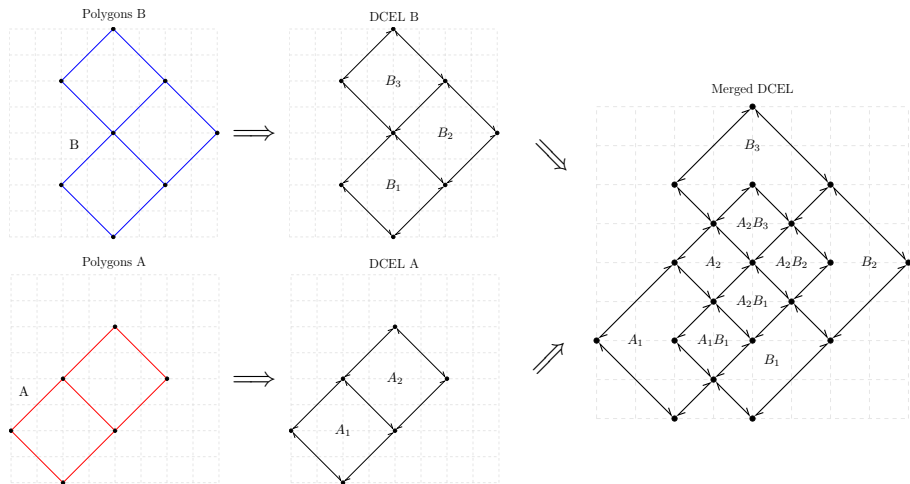
# Parallel DCEL Construction Report

Andres Calderon

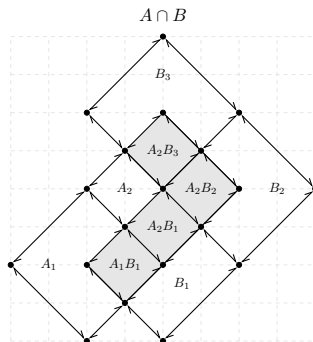
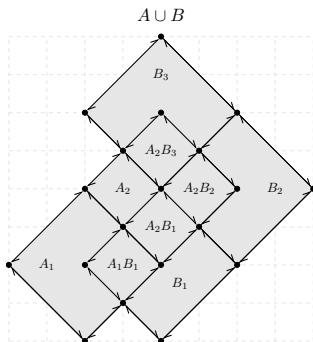
University of California, Riverside

August 14, 2019

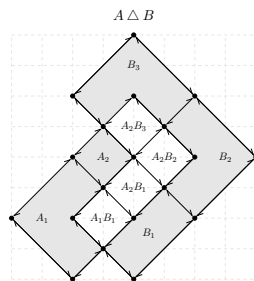
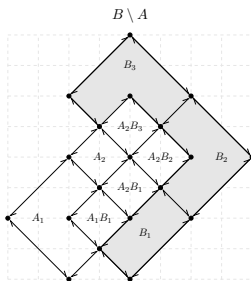
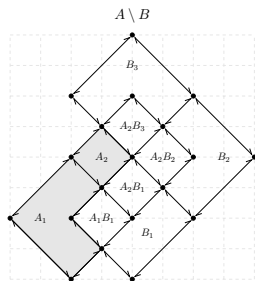
# DCEL construction



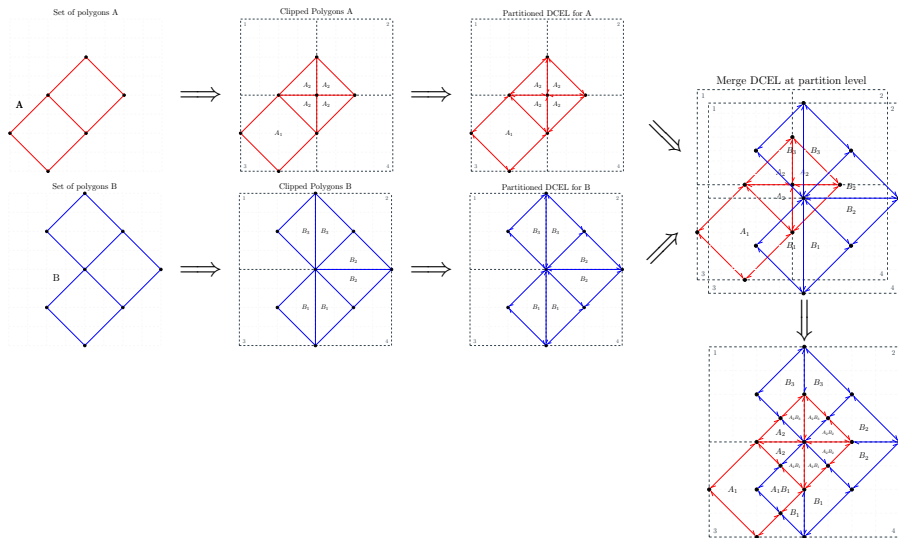
# DCEL operations



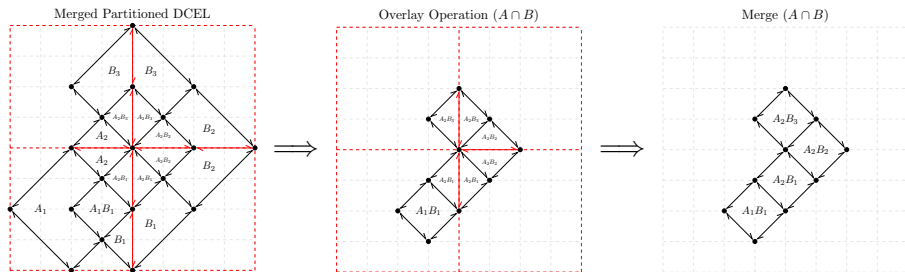
# DCEL operations



# Parallel DCEL construction



# Parallel DCEL operations

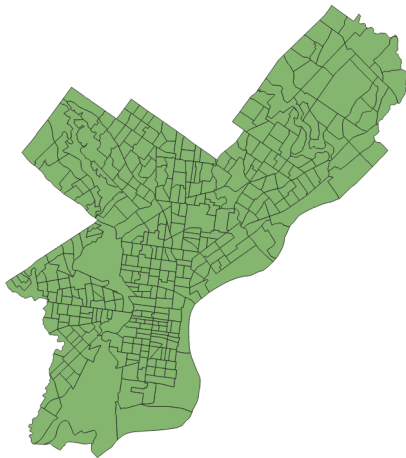


# What is next...

- ▶ **Current state:** Merged Partitioned DCEL is done.
- ▶ Working on Overlay operations.
- ▶ Additional testing.

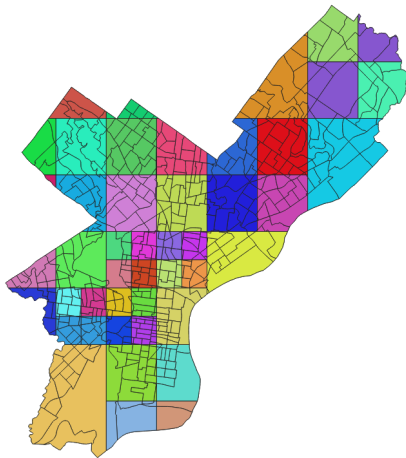
# Phili dataset

- ▶ Philadelphia counties 2010
- ▶ 385 polygons

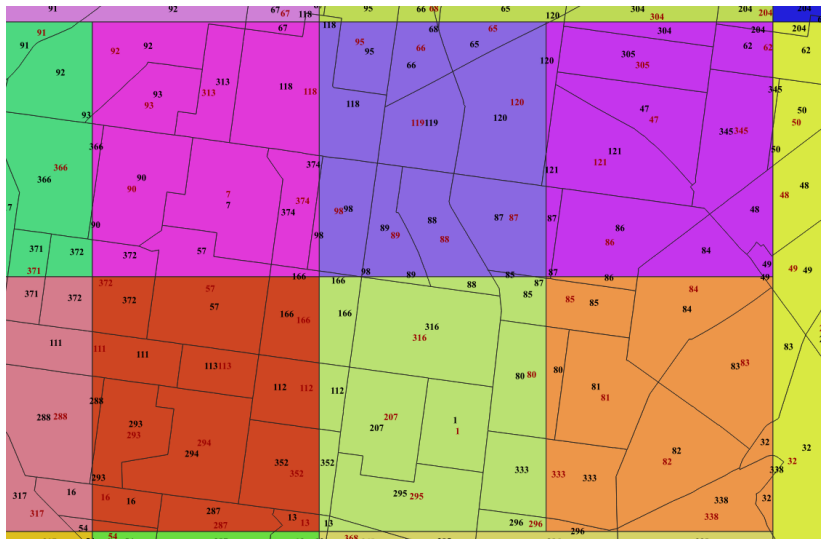




# Phili dataset

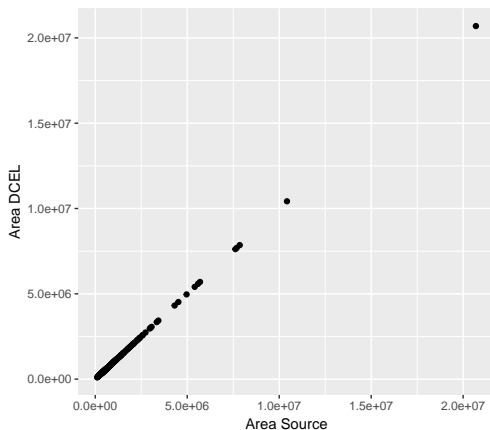


# Phili dataset



# Phili dataset

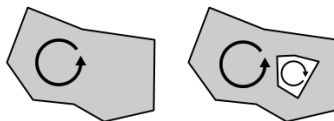
- ▶  $R^2 = 1.0$
- ▶  $RMSE = 0.0299$  ( $\approx 3cm^2$ )



# Some notes

- ▶ Some problems with larger dataset:
  - ▶ How to deal with multipolygons and holes?

**Simple Features: Counter-Clockwise**



**ESRI Shapefile: Clockwise**

