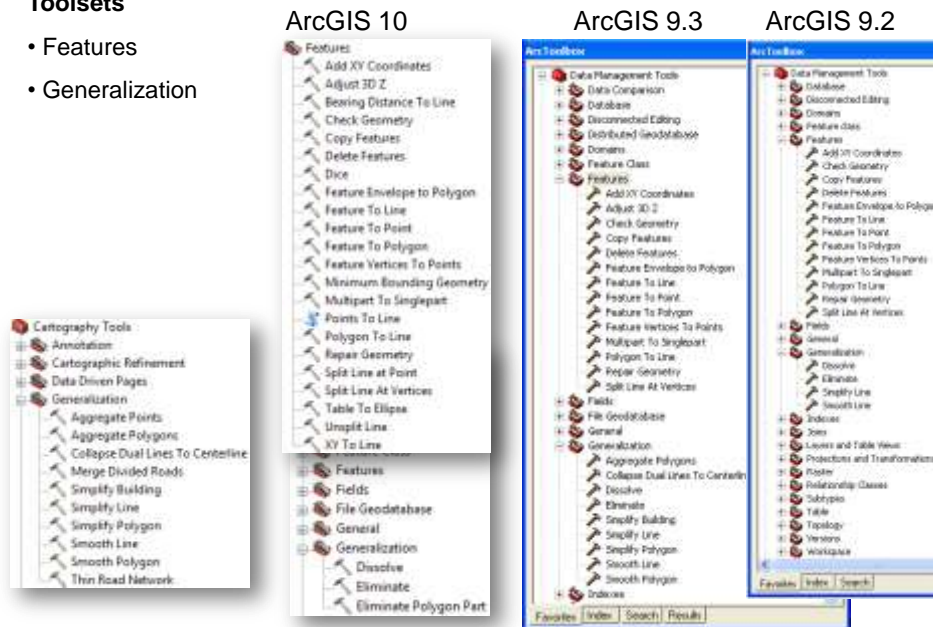


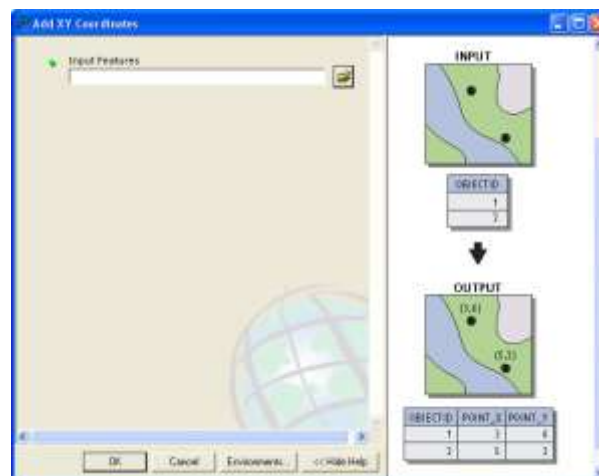
ArcToolBox: Data Management

Toolsets

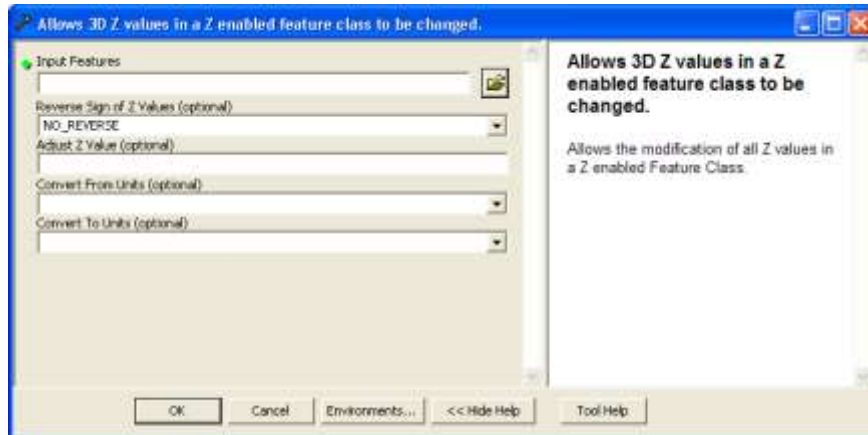
- Features
- Generalization



Features – Add XY Coordinates



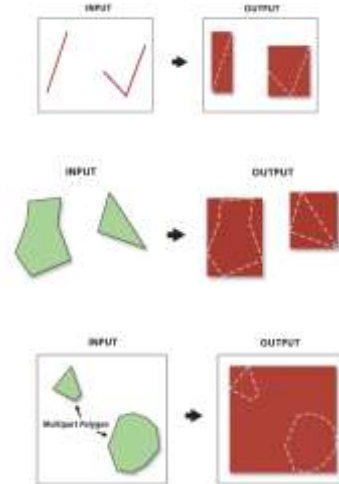
Features – Adjust 3D Z



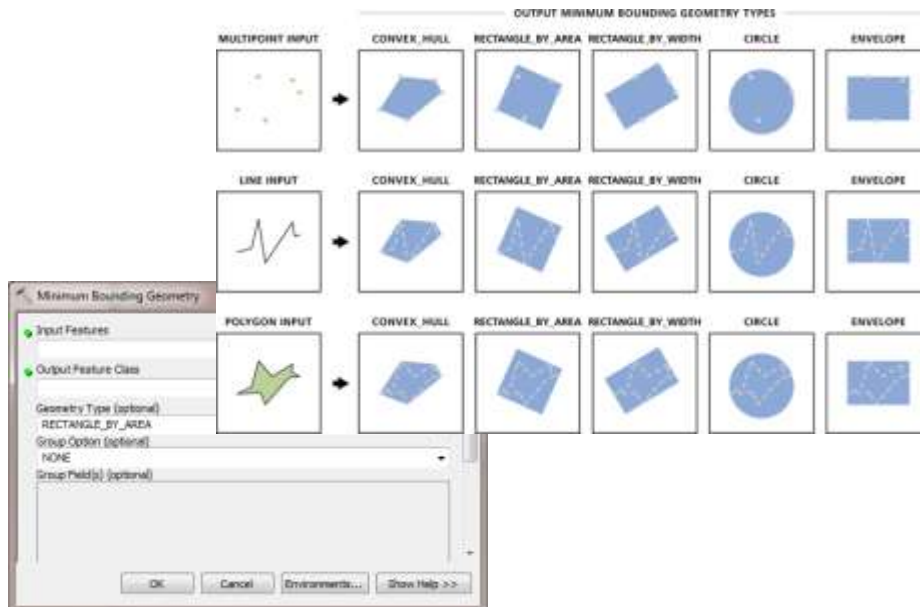
Features – Copy/Delete Features



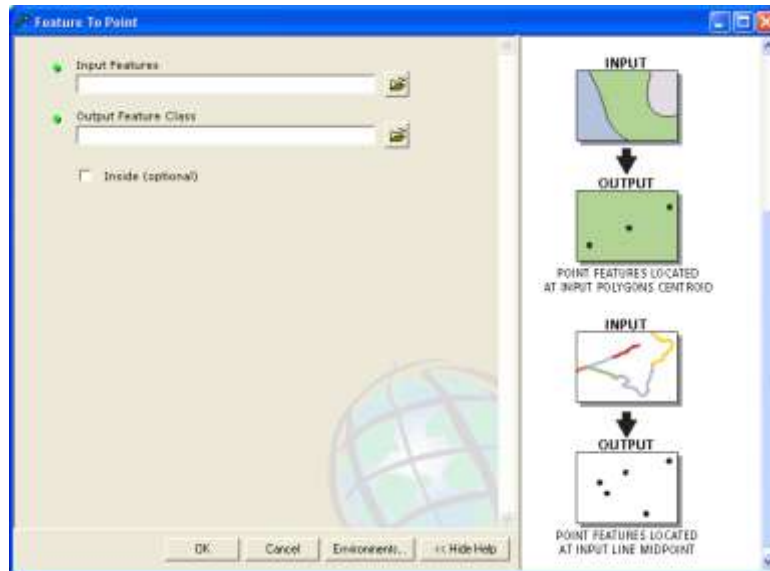
Features – Feature Envelope to Polygon



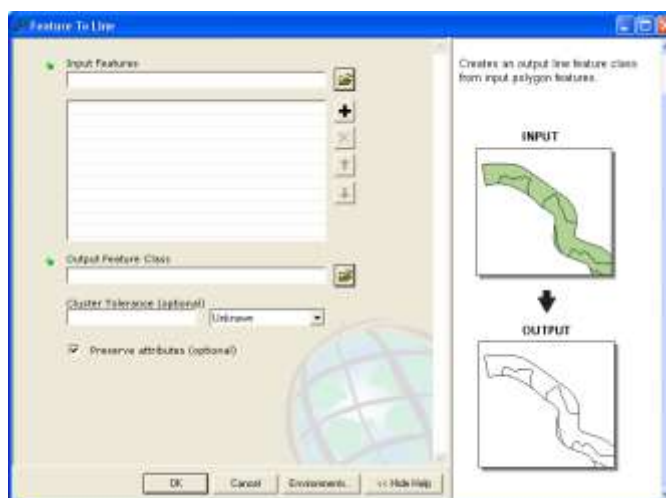
Features - Minimum Bounding Geometry



Features – Feature to Point

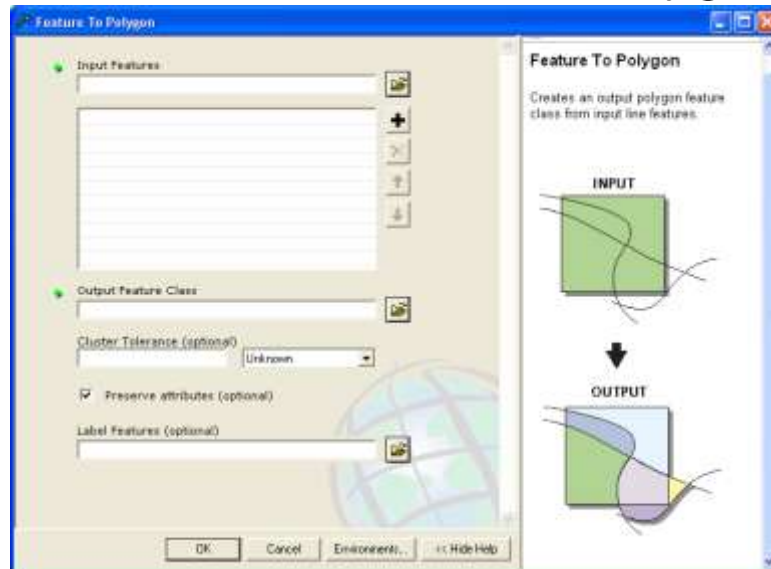


Features – Feature to Line

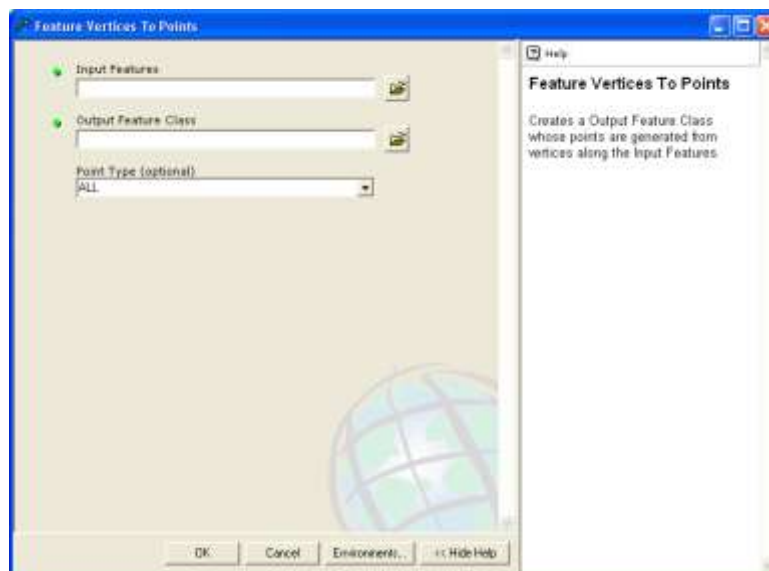


- Input must be polygon features

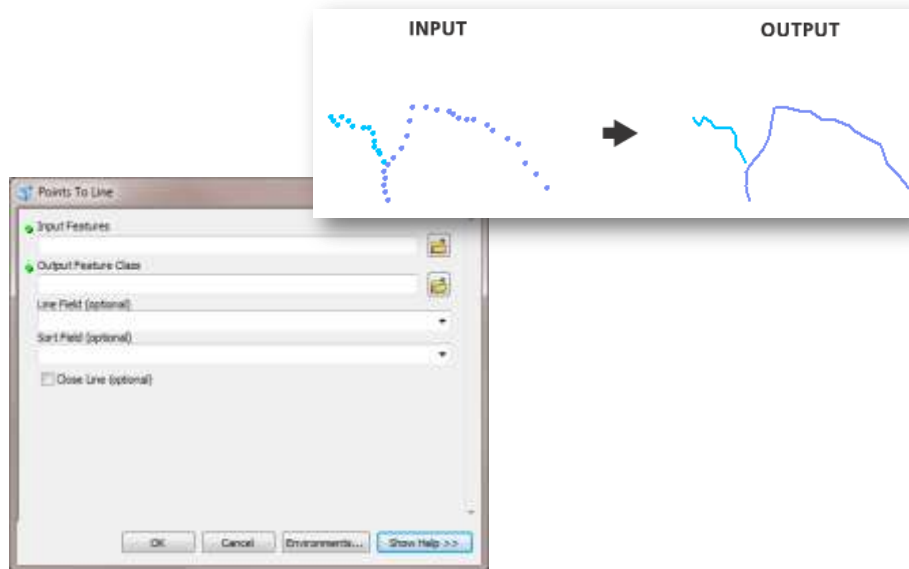
Features – Feature to Polygon



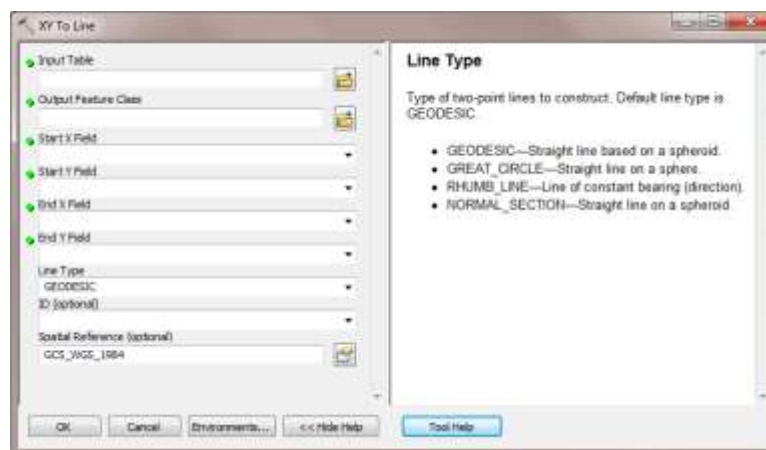
Features – Feature Vertices to Points



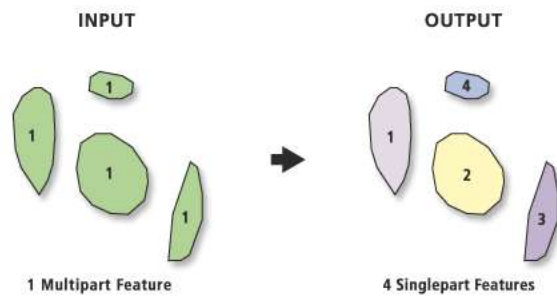
Features - Points To Line



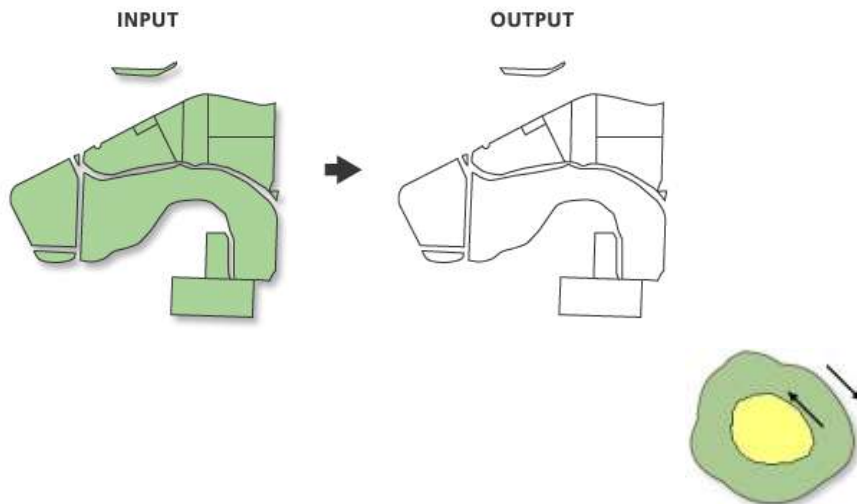
Features - XY To Line



Features – Multipart to Singlepart

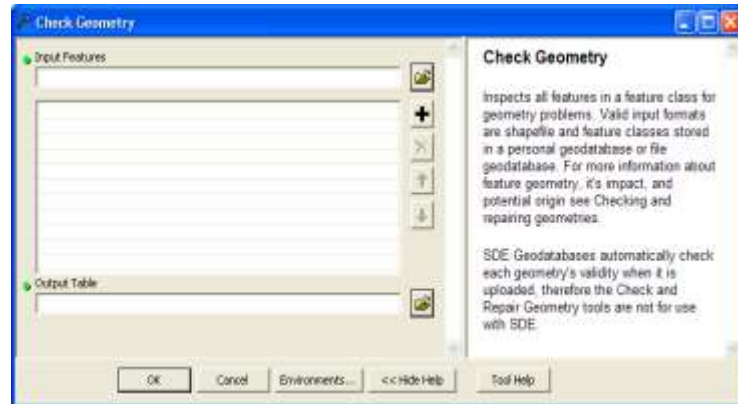


Features – Polygon to Line



Features – Check/Repair Geometry

- Valid Input formats:
 - Shapefiles
 - Personal & File GDB
- SDE GDB check geometry automatically



Geometry Problems

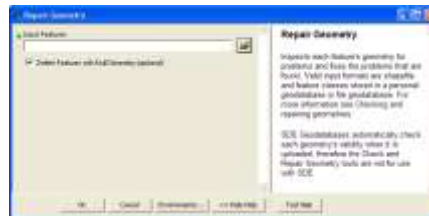
- Short segment: Segments are shorter than allowed by the system units of the spatial reference.
- Null geometry: The feature has no geometry or nothing in the SHAPE field.
- Incorrect ring ordering: The polygon's rings may not be oriented correctly (outer rings - clockwise, inner rings - counterclockwise).
- Incorrect segment orientation: Segments are not consistently oriented. The "to" point of seg i should be incident on the "from" point of seg i+1.
- Self intersections—The interior of each part must not intersect itself or other parts.
- Unclosed rings—The last segment in a ring must have its "to" point incident on the "from" point of the first segment.
- Empty parts—The geometry has multiple parts, and one of them has no geometry.

Output Table of Check Geometry

- CLASS
- FEATURE_ID
- PROBLEM

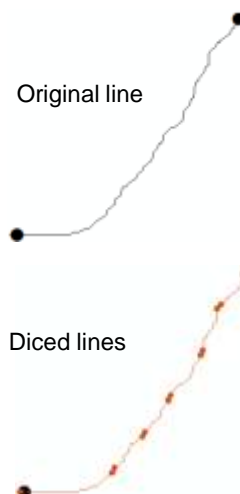
PROBLEM	Point	Line	Polygon
short segment		✓	✓
null geometry	✓	✓	✓
incorrect ring ordering			✓
incorrect segment orientation			✓
self intersections		Multipart	Multipart
unclosed rings			✓
empty parts	Multipart	Multipart	Multipart

Features – Repair Geometry

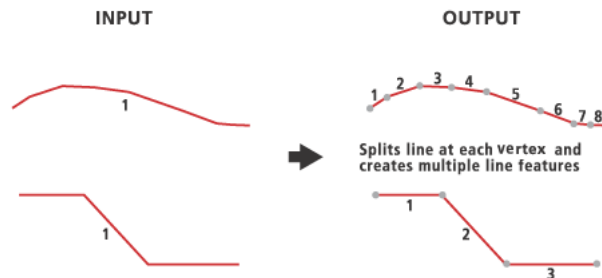


Features - Dice

- The minimum vertex limit is 10



Features – Split Line at Vertices

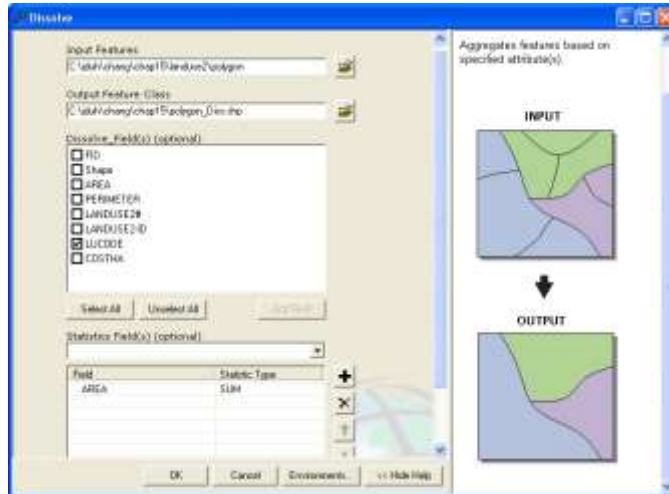


Features – Split Line at Point

- Splits line features based on intersection or proximity to point features

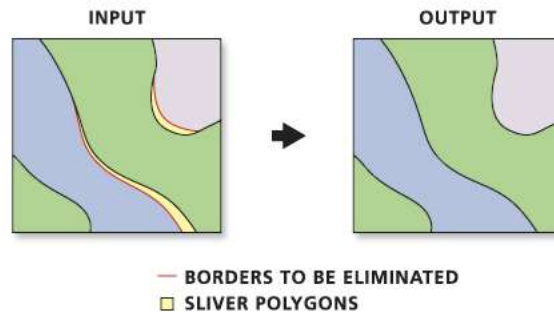


Generalization – Dissolve

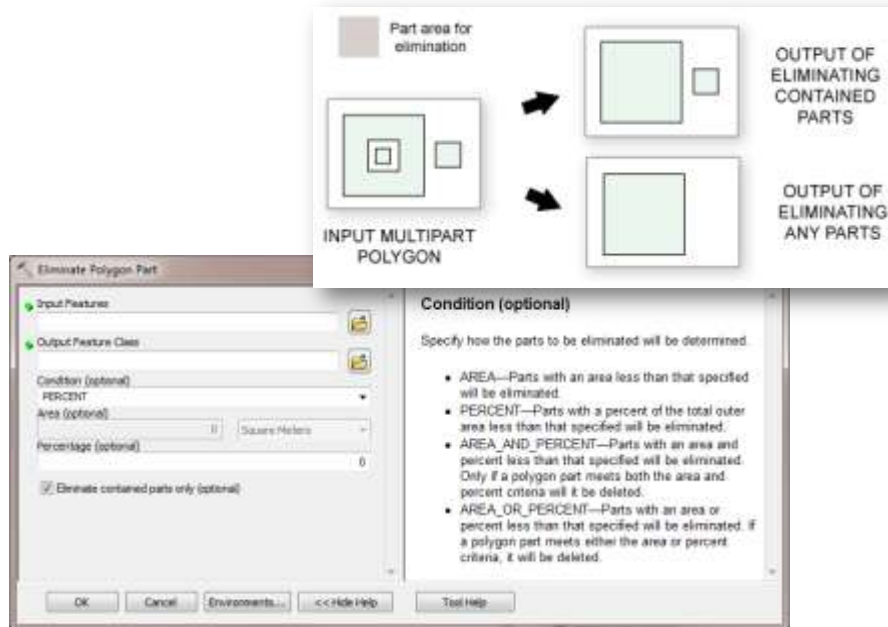


- Dissolve may result in multipart features being created

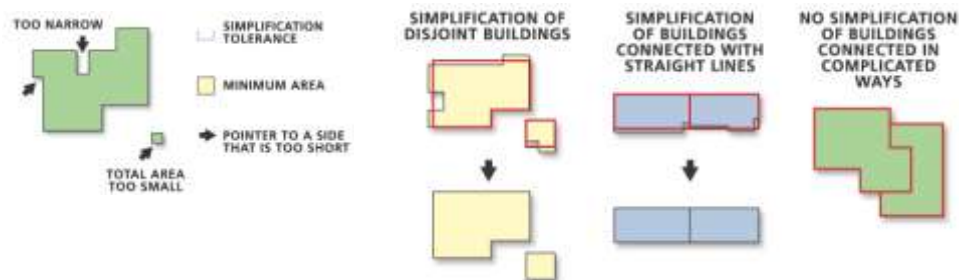
Generalization – Eliminate



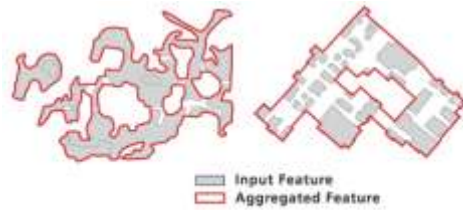
Generalization – Eliminate Polygon Part



Carto Generalization – Simplify Building

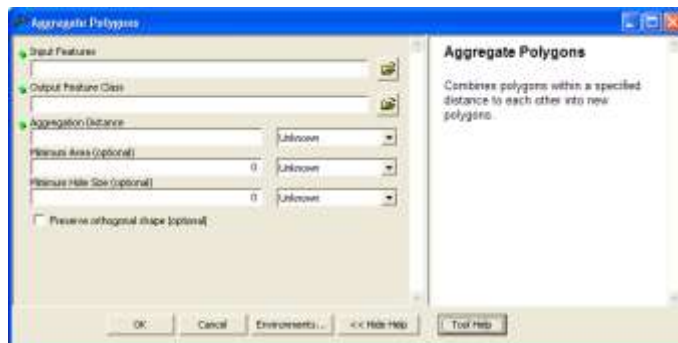


Carto Generalization – Aggregate Polygons

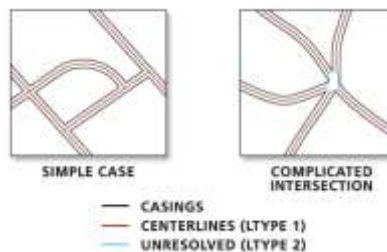


A) Nonorthogonal features

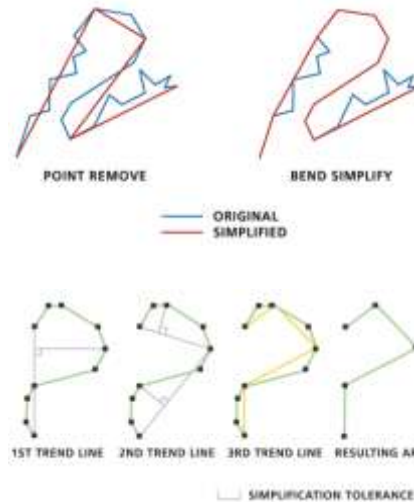
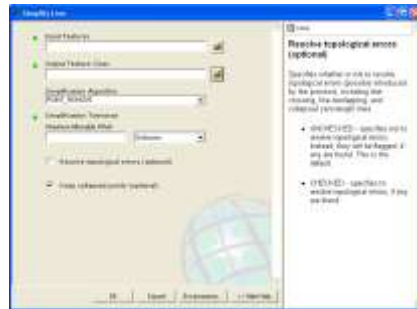
B) Orthogonal features



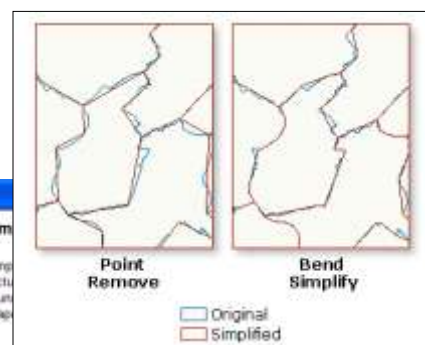
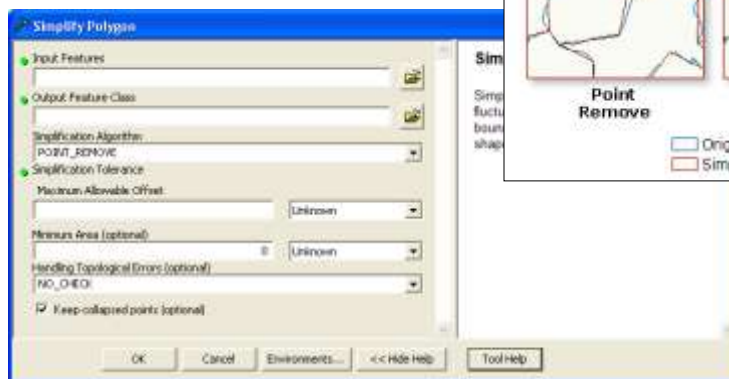
Carto Generalization – Collapse Dual Lines to Centerlines



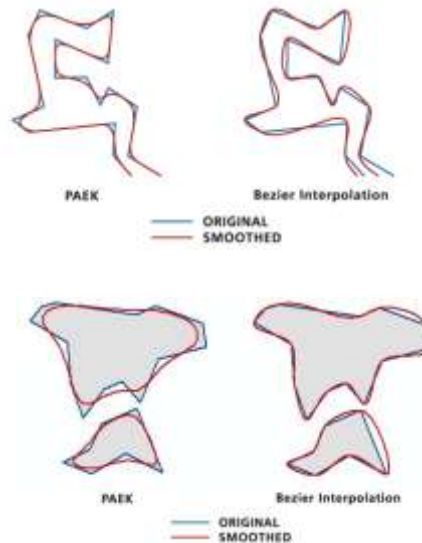
Generalization – Simplify Line



Generalization – Simplify Polygon



Carto Generalization – Smooth Line/Polygon



Free Toolsets for ArcGIS

<http://freegeographytools.com/2007/free-toolsets-for-arcgis>

- Hawth's Analysis Tools For ArcGIS (<http://www.spatial ecology.com/htools/tooldesc.php>)
- XTools Pro (<http://www.xtoolspro.com/>)
- ET GeoTools & ER GeoWizards (<http://www.ian-ko.com/>)