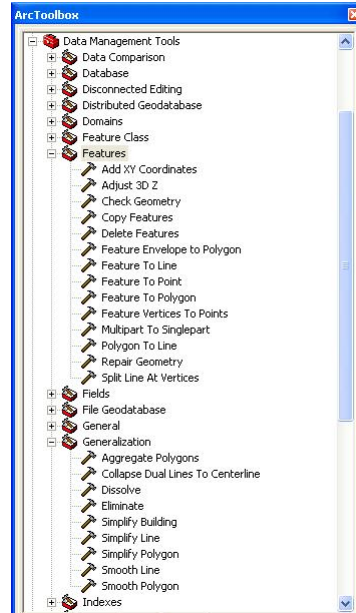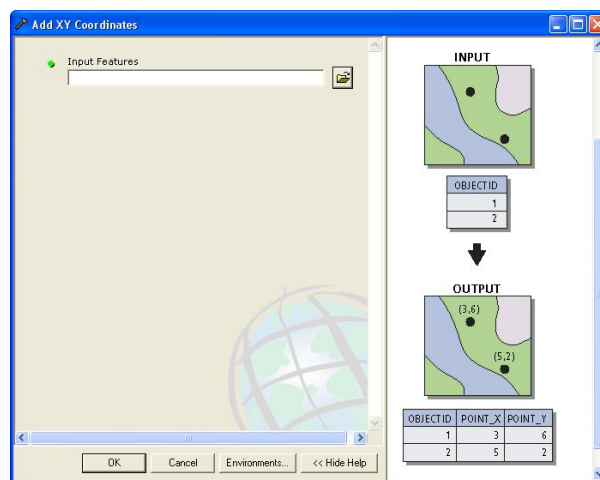# ArcToolBox: Data Management

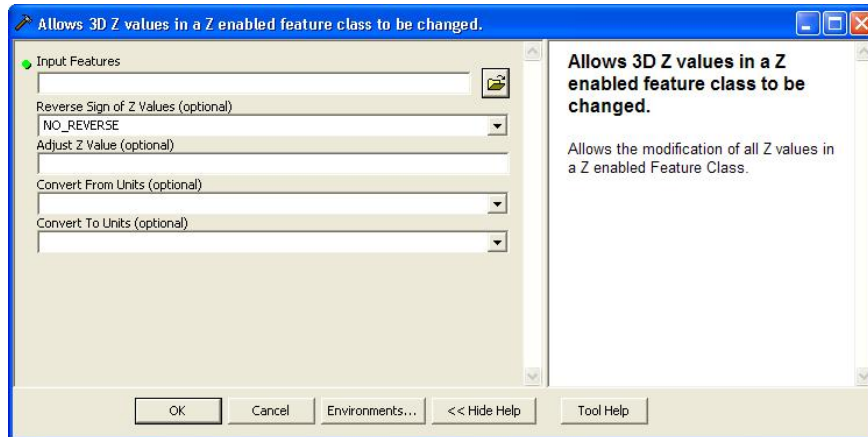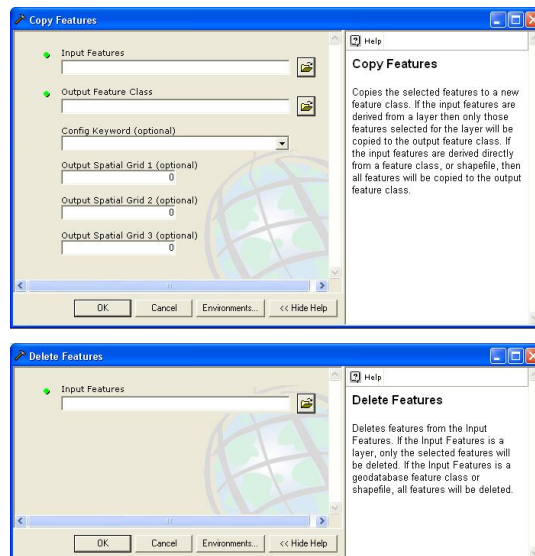**Toolsets**

• Features

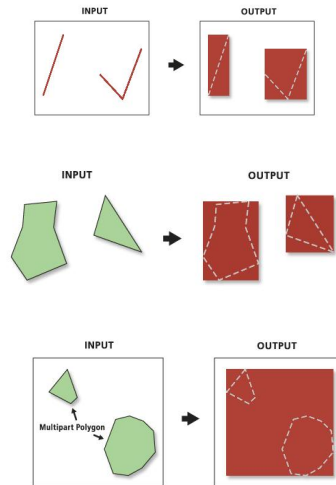• Generalization

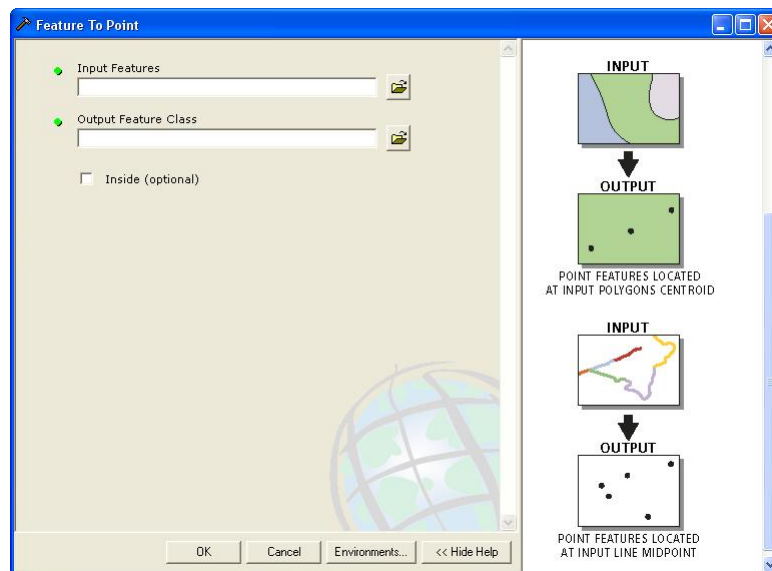# Features – Add XY Coordinates

Features – Adjust 3D Z

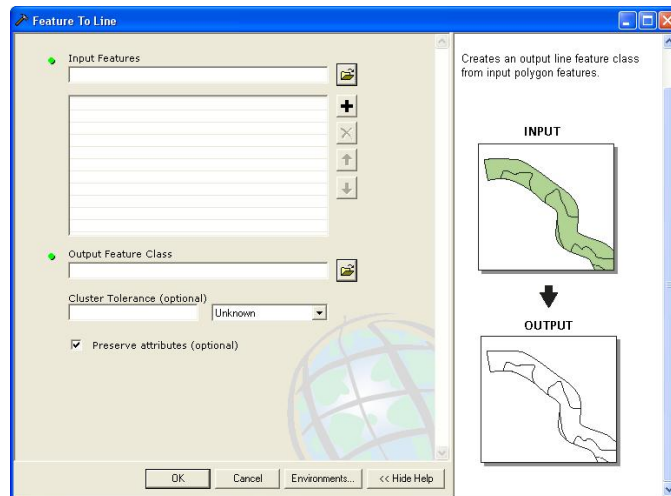# Features – Copy/Delete Features

Features – Feature Envelope to Polygon
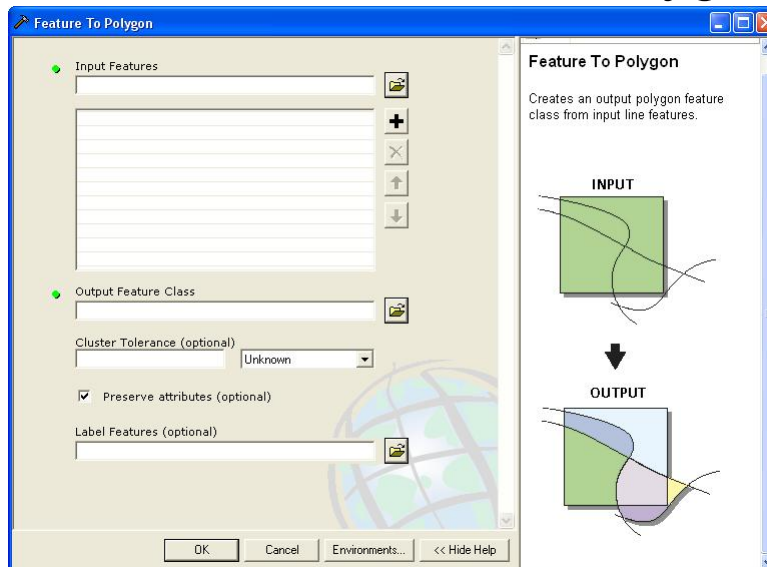

Features – Feature to Point
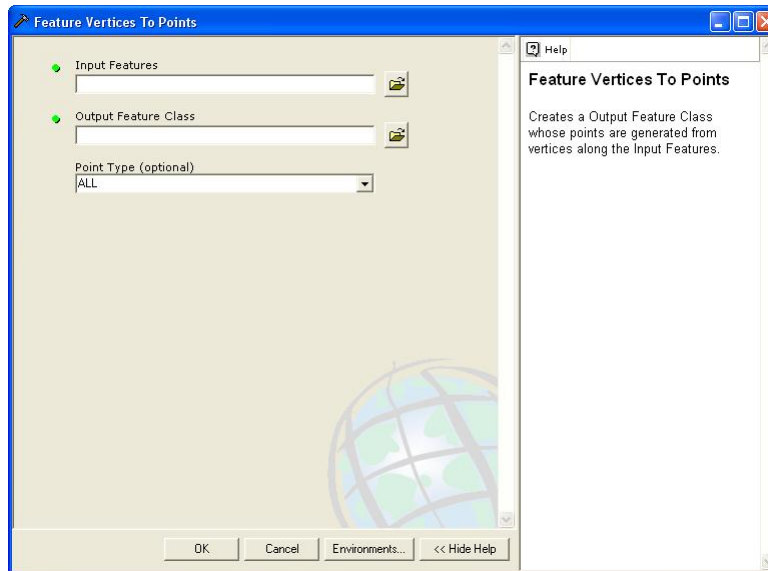
Features – Feature to Line

• Input must be polygon features

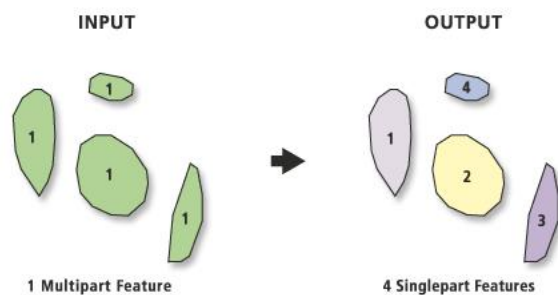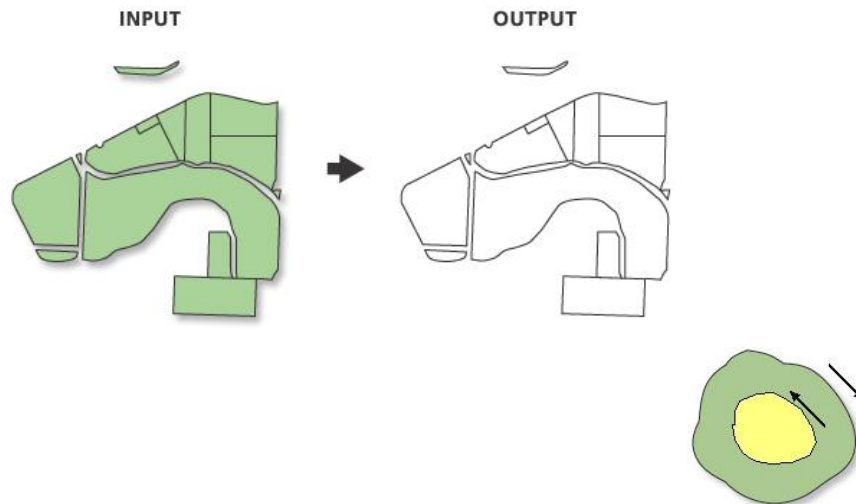# Features – Feature to Polygon

Features – Feature Vertices to Points

Features – Multipart to Singlepart
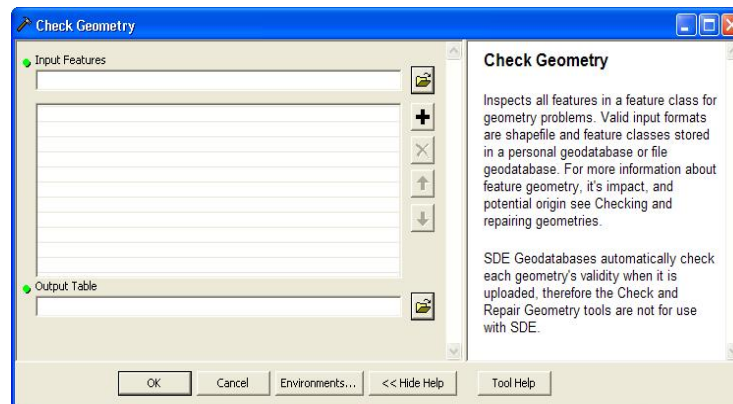

INPUT → OUTPUT

1 Multipart Feature → 4 Singlepart Features

Features – Polygon to Line

INPUT   OUTPUT

Features – Check/Repair Geometry

• Valid Input formats:
  • Shapefiles
  • Personal & File GDB

• SDE GDB check geometry automatically

Check Geometry

Input Features

Output Table

OK   Cancel   Environments...   << Hide Help   Tool Help

Check Geometry

Inspects all features in a feature class for geometry problems. Valid input formats are shapefile and feature classes stored in a personal geodatabase or file geodatabase. For more information about feature geometry, it's impact, and potential origin see Checking and repairing geometries.

SDE Geodatabases automatically check each geometry's validity when it is uploaded, therefore the Check and Repair Geometry tools are not for use with SDE.
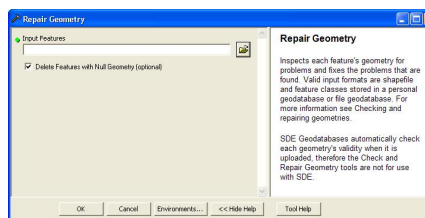
Geometry Problems

- 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 – Split Line at Vertices

INPUT   OUTPUT

Splits line at each vertex and
creates multiple line features
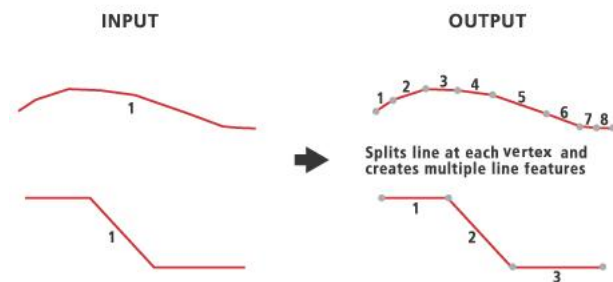
Generalization – Aggregate Polygons

Input Feature
Aggregated Feature
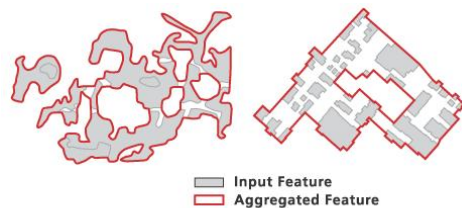
A) Nonorthogonal features   B) Orthogonal features

Aggregate Polygons

Aggregate Polygons

Combines polygons within a specified
distance to each other into new
polygons.

Input Features

Output Feature Class

Aggregation Distance

| | Unknown |

Minimum Area (optional)

| 0 | Unknown |

Minimum Hole Size (optional)

| 0 | Unknown |

☐ Preserve orthogonal shape (optional)

OK   Cancel   Environments...   << Hide Help   Tool Help
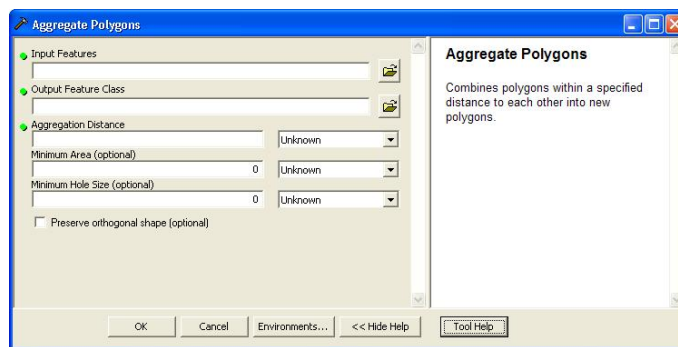
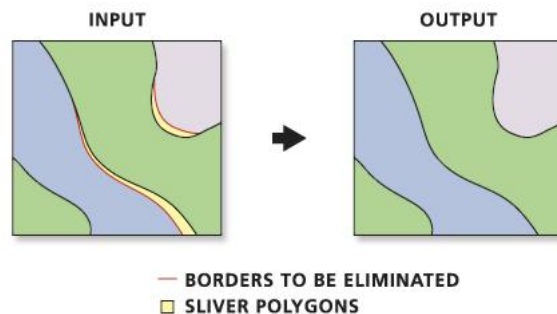# Generalization – Collapse Dual Lines to Centerlines
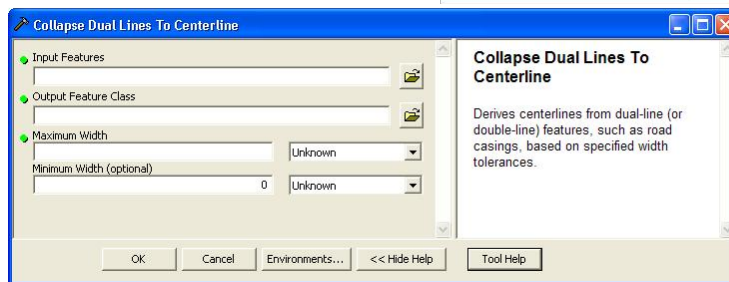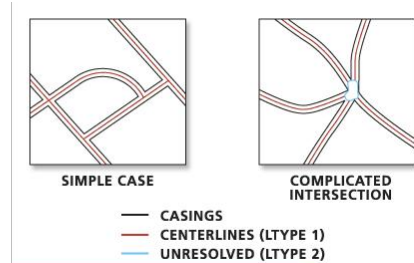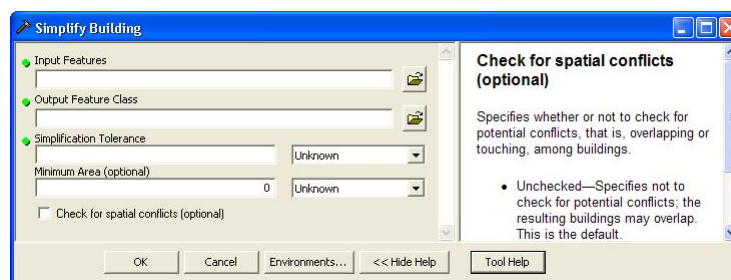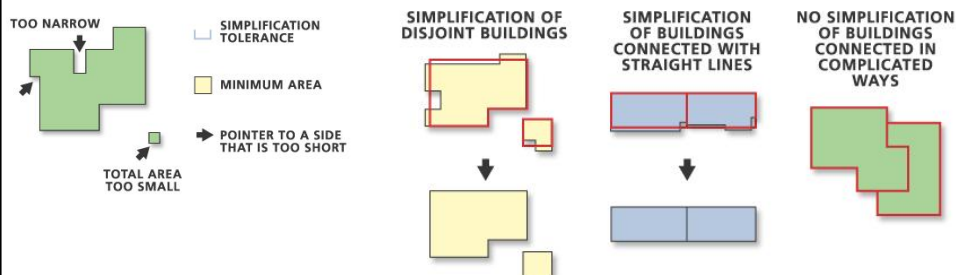

Generalization – Dissolve
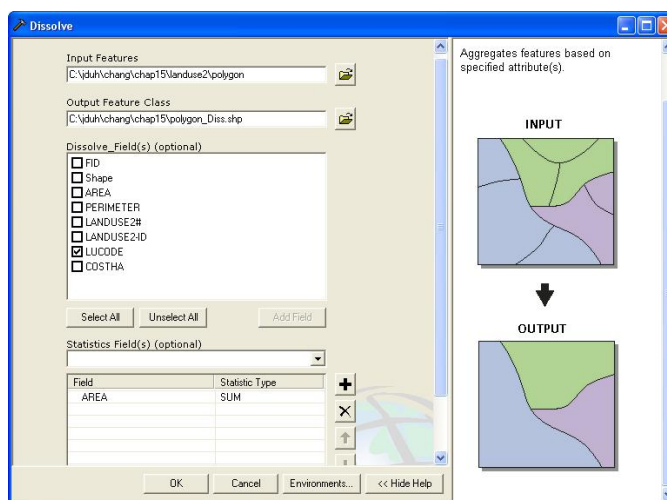
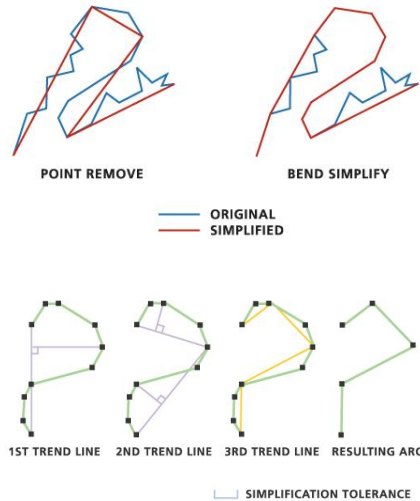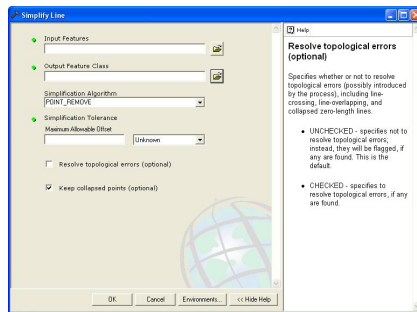- Dissolve may result in multipart features being created
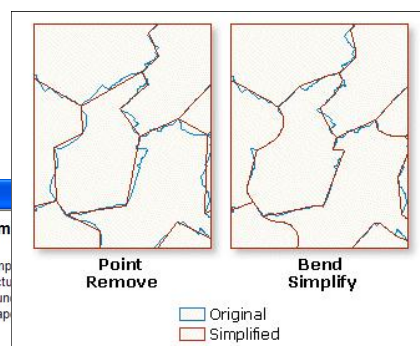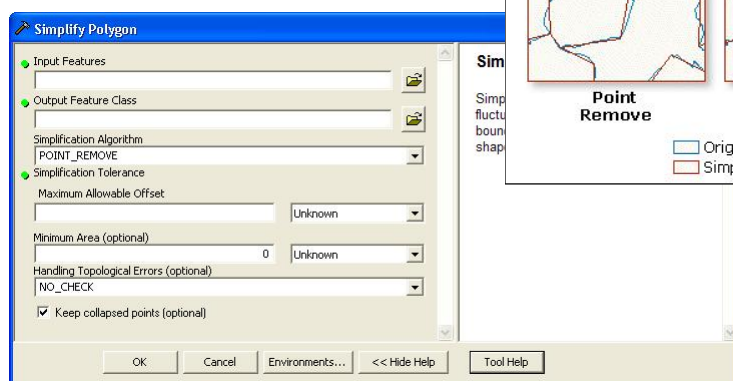
Generalization – Eliminate

Generalization – Simplify Building

Generalization – Simplify Line

Generalization – Simplify Polygon

Generalization – Smooth Line/Polygon