Review from last lecture (Voting)
Finish Chapter 7 - buffer, dissolve, appending
(multi-part polygons)
follow along data in: CH7B_class_ex folder
Textbook SKills reference: ANALYSIS p. 559-
HW 8 (mini proj. 2 due Nov. 1)
HW 9 (mini project 3) - due Nov. 3

For which operation is the **order** of layers of importance?

- Clip
- Union
- Intersect
- All

Which of these geoprocessing operations also join the **attribute** tables of all layers involved?

- Clip
- Erase
- Intersect
- All
You intersect two polygons, the result will be:

- a polygon
- a line
- two points

any of these

Dissolving:
Choose attribute(s) to dissolve on (here: Name)

Dissolve polygons on habitat class attribute

Dissolve Tool
If no attribute is selected - dissolving is “graphical” only

Uncheck multipart to create single part features. (If you need correct number of features)

Polygons in DMLobe_MDRock_Union.shp before the dissolve operation

Note: each polygon’s REGION attribute value is either 0 or 2
Finding ArcTools with ArcMap's Search

- Windows - Search or Search Tab
- Local Search, Tools
- dissol.....
- Completes to all Tools related to Dissolve
- Choose Dissolve (Data Management)
- Data Management - Generalization is its “folder” in ArcToolbox

ArcToolbox - Data Management Tools - Generalization - Dissolve

- Put all your output into: Default_CH7B.gdb
- **Don’t check** any Dissolve_Fields
- “Graphically” dissolve i.e. aggregate polygons that “touch”
- **Don’t check**: Create multi-part features
- Make standard (single part) polygons
- Output layer name: dissolve_graphical_single_polygons

Open Dissolve Tool again

- **Check** REGION in Dissolve_Fields
  - aggregate polygons that have the same value for REGION (either 0 or 2)
- **Check**: Create multi-part features
- Creates a Multi-part polygon
- Output layer name: dissolve_REGION_multi-part_polygons

Dissolved without attributes (“graphically”) and creating single part polygons
After Dissolve using REGION attribute (and multipart = ON)

Multi part polygons: the Region 0 polygon counts as just one feature - but actually has 5 “physical” polygons

Optional Step: Summarize Num_Deers attributes by (now dissolved) Region

Buffering
- Creates single or multiple buffers (rings, polygons) around points, lines or polygons
- Buffer Tool (Single buffer): Adds a new attribute called BUF_DIST for buffer-distance
  - By default: no dissolving
- Multi-buffer tool
  - needs list of distances (50, 100, 200, 500)
  - creates multi-part polygons
  - attribute's name is distance
  - Dissolves ALL by default
  - can take a long time
The Dissolve option in Buffering

Buffering with the NONE option (default): 1 buffer polygon per point/line
- Set **Dissolve** to ALL (to actually get dissolved buffers)
- Single buffer default is NONE
- But: Dissolving takes time! (Depends on number of features)

Buffering with the ALL option: Automatic Dissolve (nicer?)

**Analysis Tools - Proximity**
- **Buffer**
  - Create a 1000 m buffer around each highway line
  - Output name: highway_1000m_Buffer
  - Dissolve: ALL
  - graphically dissolve into a single multi-part polygon

To dissolve buffers set Dissolve Type to ALL (or select from the list of Attributes)

- Use **buff_dist** field (attribute) in highway as buffer distance
- Buffer width will depend on this number (500, 1000, ..., 3000)
- Output name: highway_buffer_field
- Dissolve: NONE
- Creates a single polygon for each line segment
- color by Buff_dist
Append (Merge)

- Combines feature classes into one layer (no dissolving of features!)
- To bring attributes along, tables of input features classes must match exactly: same classes, same order, same definitions
- TEST: combine tables
- NO.TEST: don’t combining tables, graphical appending only
- Merge: like Append but attribute table matching is more flexible

Length/Area calculations

- Area/Length fields in **Shapefiles** are NOT internally updated after geoprocessing operations
- Solutions?
  - Calculate Geometry (similar to Field calculator)
  - Convert shapefiles to GeoDB feature classes
  - ArcCatalog: create new GeoDB, convert shapefile, into feature class, within GeoDB, add to ArcMap
  - Polygon area: toolbox-utilities-Calculate Area

Calculate Geometry - right click on column in Attribute table

(I added a new float attribute called Area)

Wrap up

- Lab: Finish HW 8 first!
- Mini project 3
  - Copy Miniproject 3 data from GEOL552\data\miniproj3_data
  - Read Instructions - ask if not clear
  - Instructions.pdf in miniproj3_data and on WebCT (larger, in color)