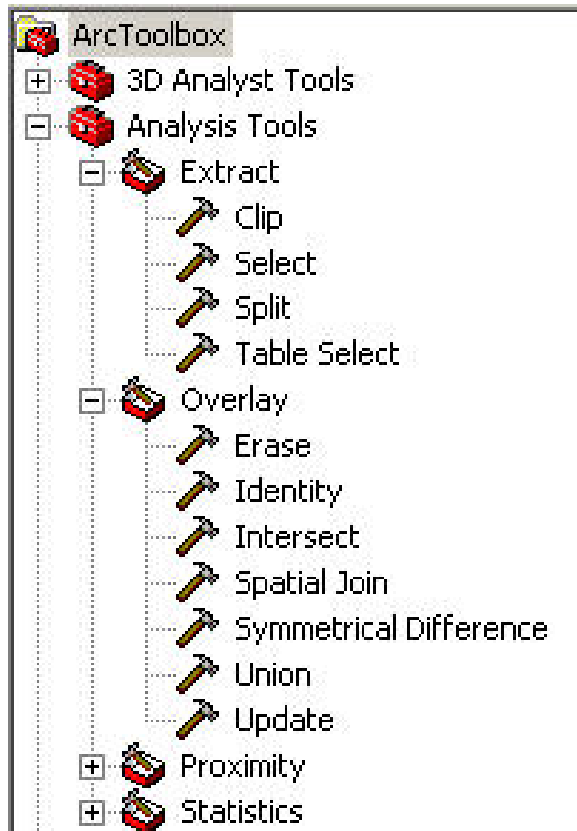


Geographic Information Systems and Remote Sensing for Natural Resource Management

FW3540

Lecture 22

GIS Analysis Functions- A Closer Look



Extract Functions- all work with a single thematic layer

Clip

Select

Split

Table Select

Overlay Functions- all require a minimum of 2 thematic layers

Proximity- work with a single thematic layer

Priority ranks

Ranking is a way to give greater control to feature classes that are known to have more reliable coordinate accuracy positions.

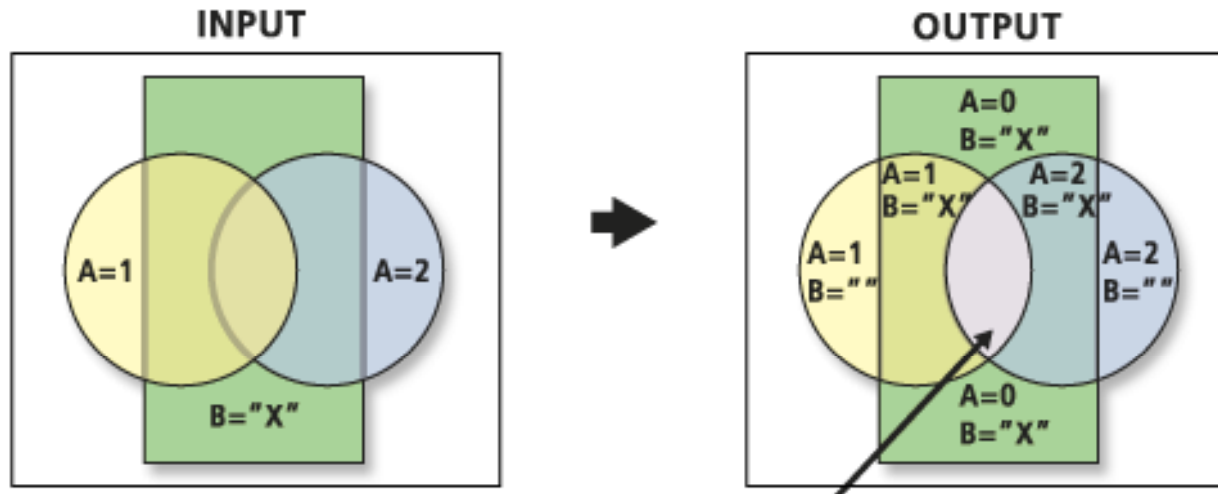
Two sets of tools that use ranks: tools with multiple inputs that explicitly allow ranking to be set, and certain overlay and extraction tools that give a higher rank to the input features over the overlay or extract features.

Specify ranks for the input feature classes:

- Intersect

- Union

- Topology Rule Sets in geodatabases



2 Overlapping features with identical geometry
 One with attribute: A=2 and B=X
 The other with attribute: A=1 and B=X

Union:

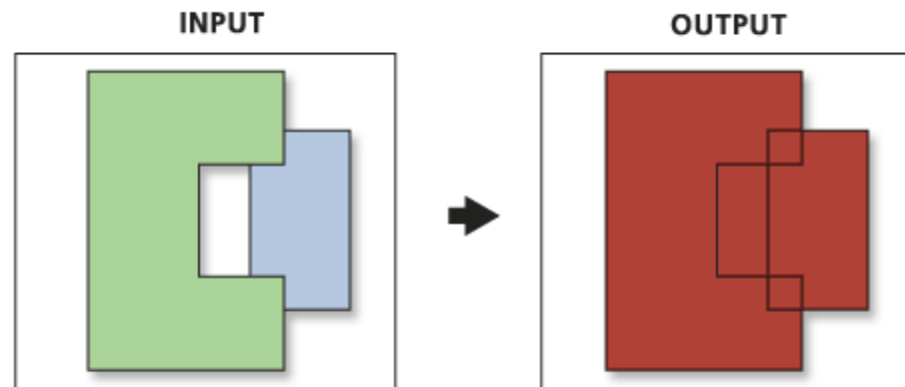
Determines the spatial reference for processing and output. All the input feature classes are projected (on the fly) into this spatial reference.

Cracks and clusters the features. Cracking inserts vertices at the intersection of feature edges; clustering snaps together vertices that are within the xy tolerance.

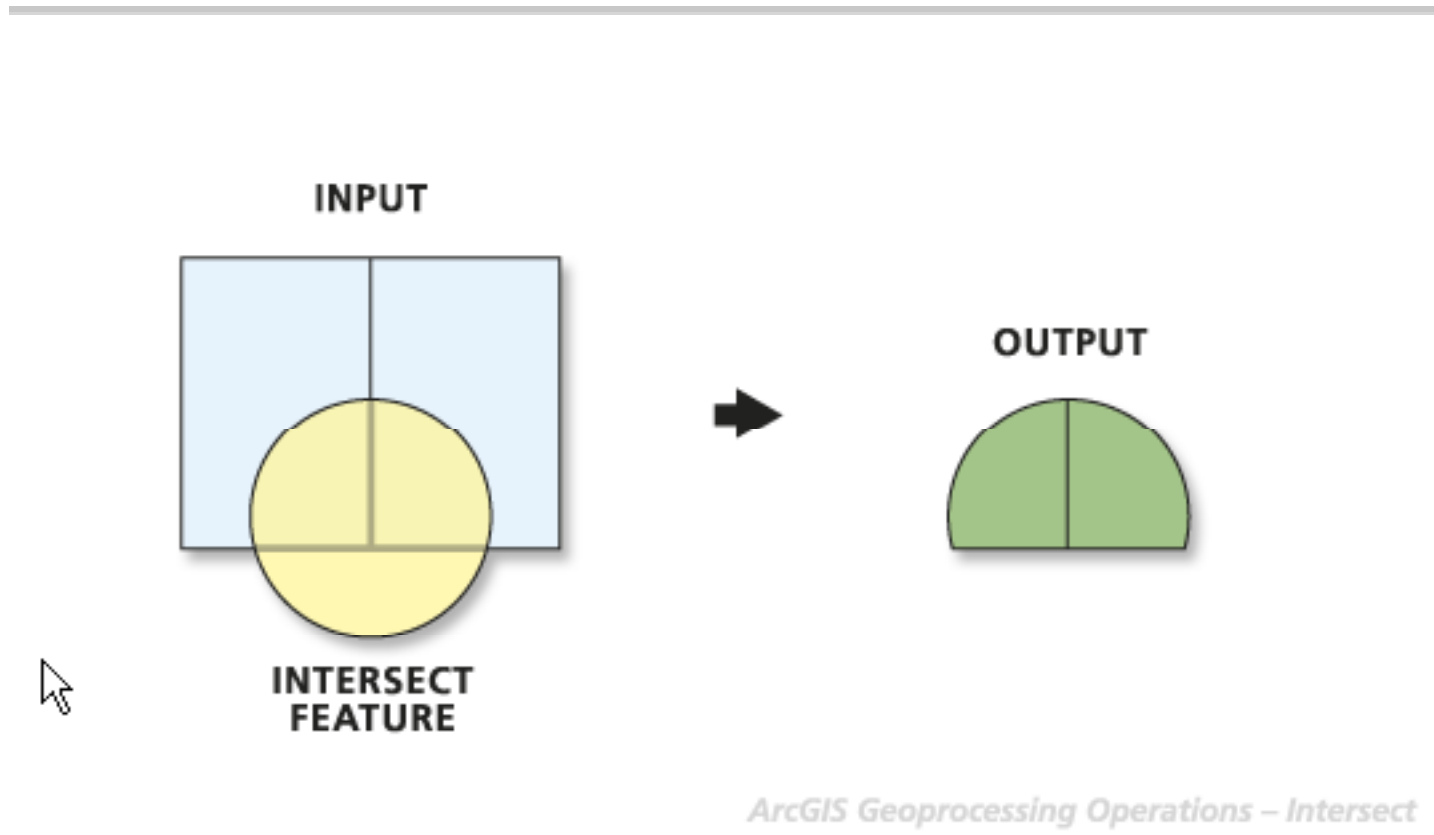
Discovers geometric relationships (overlap) between features from all feature classes.

Writes the new features to the output with the appropriate attributes.

Union with the Gaps Allowed Parameter Unchecked
A polygon feature is created that would otherwise be left empty. The "gap" features can be identified by doing an attribute query of all the input feature's FID fields = -1.



Intersection computes a geometric intersection of two thematic layers. Features or portion of features common to all layers will be written to the output. “AND” function




Valid geometry for input thematic layers is: point, multipoint, line or polygon.

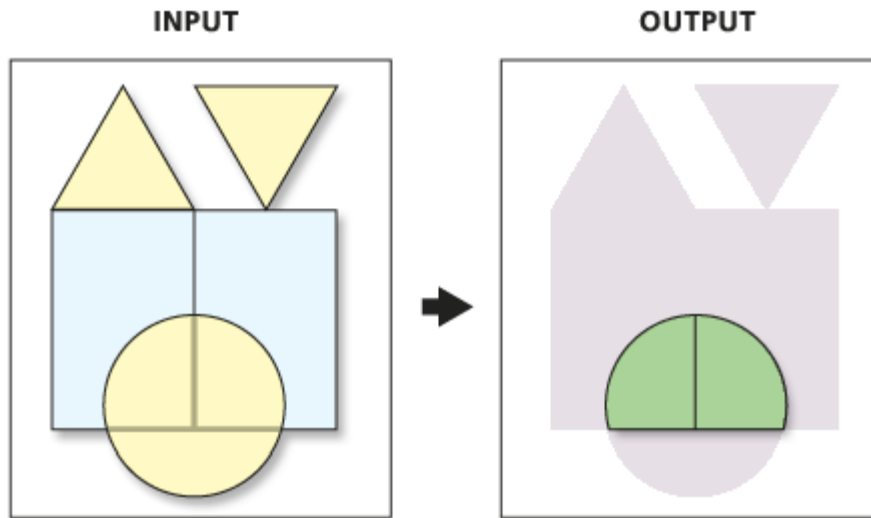
If the inputs have different geometry types (i.e. line on poly, point on line, and so on), the output thematic layer's geometry type will default to be the same as the input thematic layers with the ***lowest dimension geometry***.

If one or more of the inputs is a point file- output will be point.

If one or more of the inputs is a line- output will be line.

If all inputs are polygon, the default output will be polygon.

Polygon in  Polygon out



Default type may also be specified by analyst, but output must be the same or lower dimension geometry

