



Working with Cartographic Representations

Edie Punt

Jamie Conley

Technical Workshop

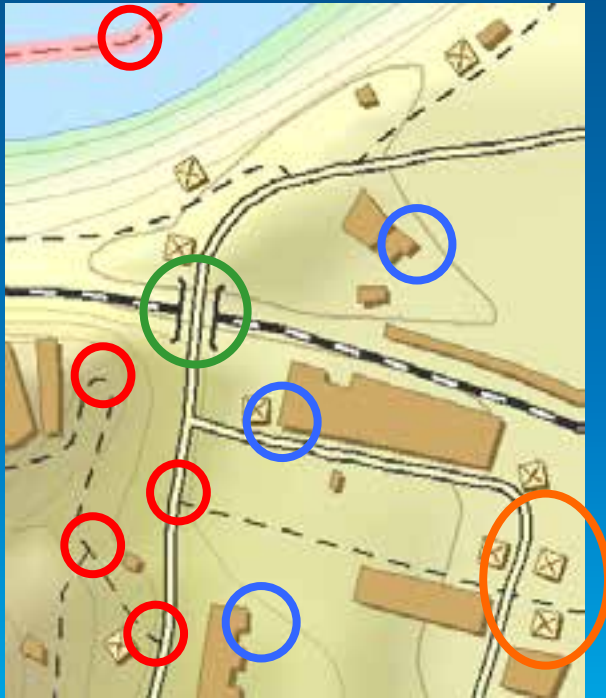
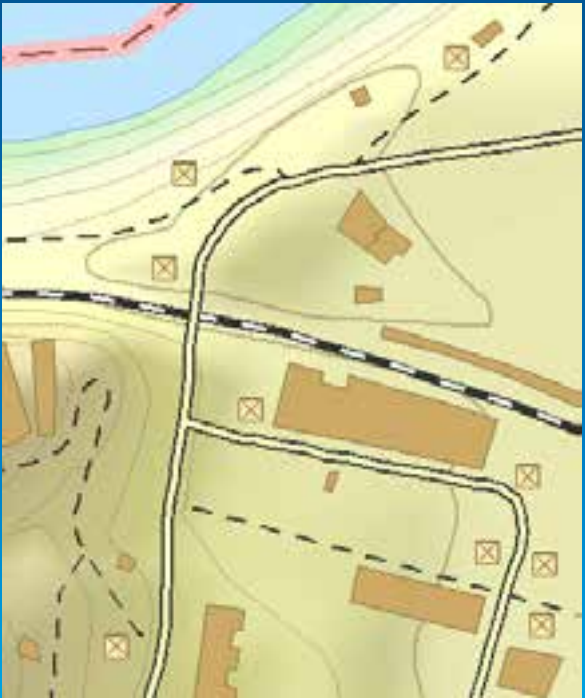
What are cartographic representations?

- A way to symbolize features to solve cartographic challenges
- A storage model that stores symbols with data
- Part of a feature class, managed through a layer



What can representations do?

Representations can draw features cartographically



What can representations do?

Representations can produce dynamic geometry which may differ from spatial geometry



What can representations do?

Feature classes can have more than one representation to draw the same data in different ways

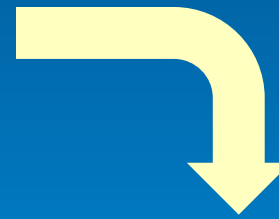


What can representations do?

Representations can be data-driven to tailor symbols to feature attribution



Streets drawn
with one symbol

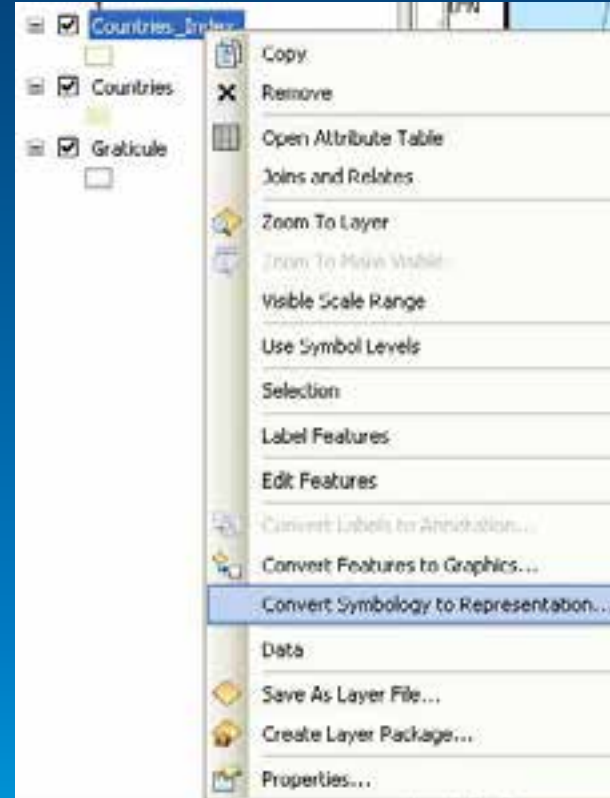


Casing and fill width
from attributes

ID	Type	Casing	Fill	RuleID	Override
1	Street	1	0	StreetSym	<null>
2	Major Road	3	2	StreetSym	<null>
3	Minor Road	2	1	StreetSym	<null>
4	Minor Road	2	1	StreetSym	<null>
5	Street	1	0	StreetSym	<null>

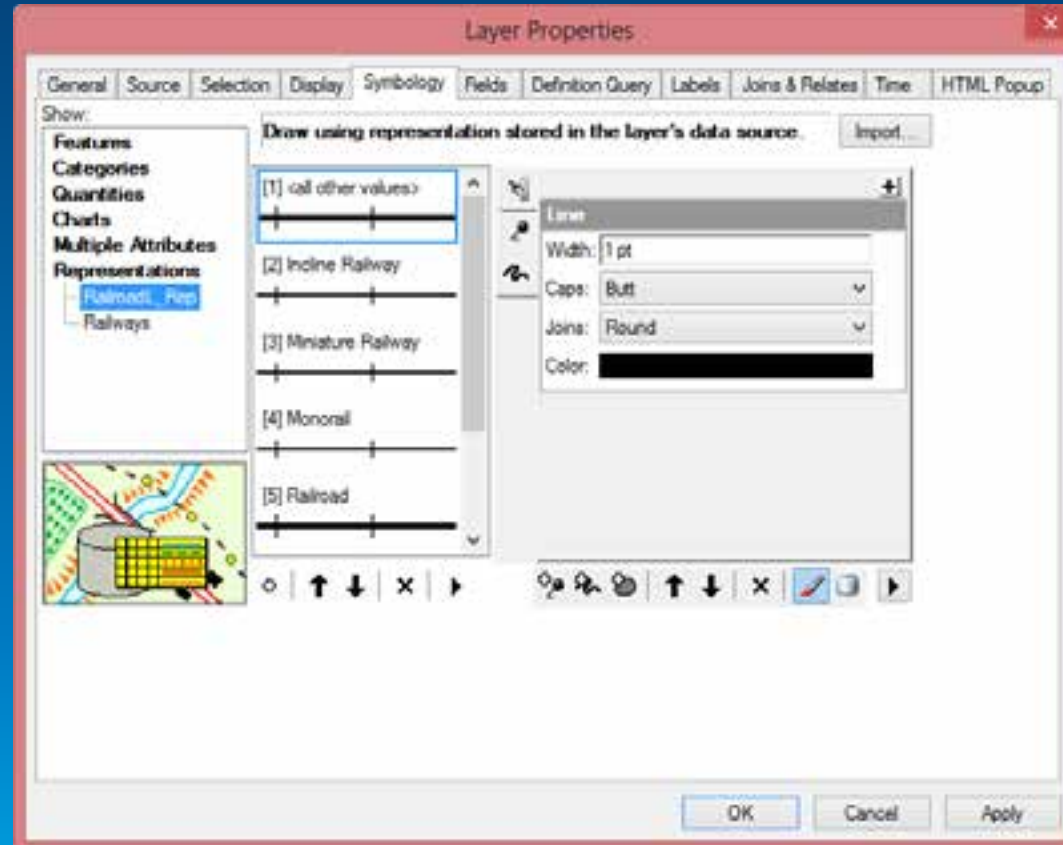
How do I get started?

Convert a symbolized layer to a representation on the source feature class from the Table of Contents



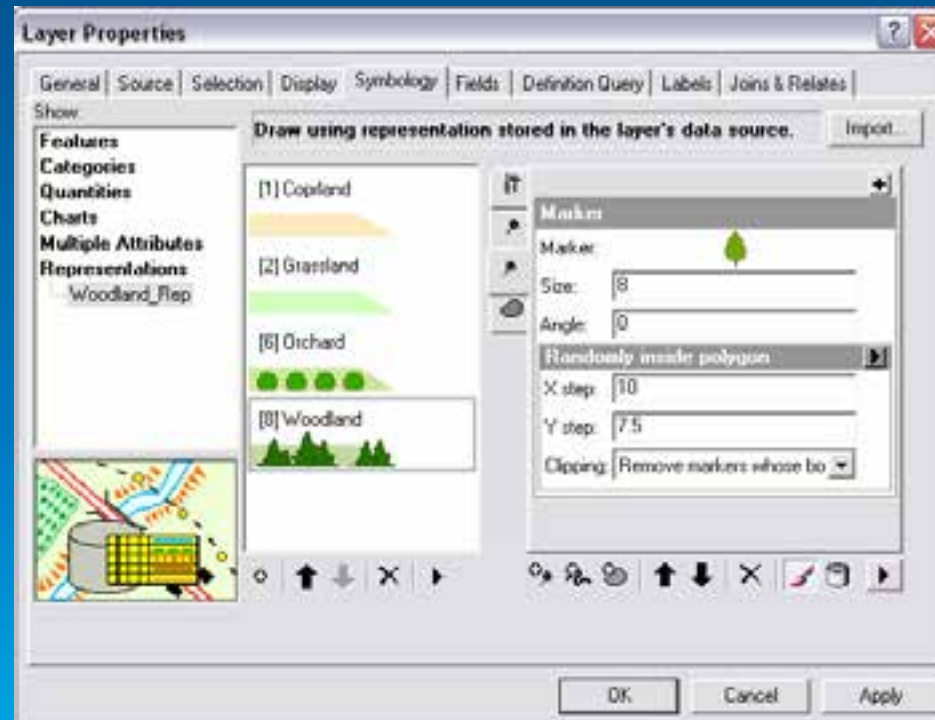
How do I draw representations?

You can symbolize a layer by a representation if one (or more) exist on the source



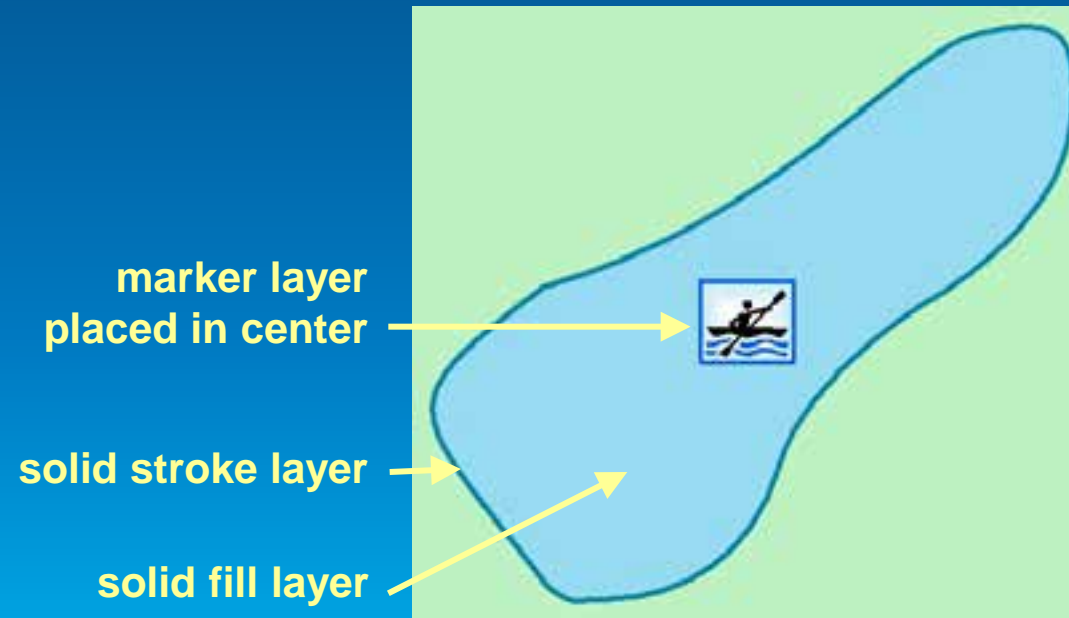
What are representation rules?

- Like symbols: a set of drawing instructions
- Consist of:
 - symbol layers
 - geometric effects



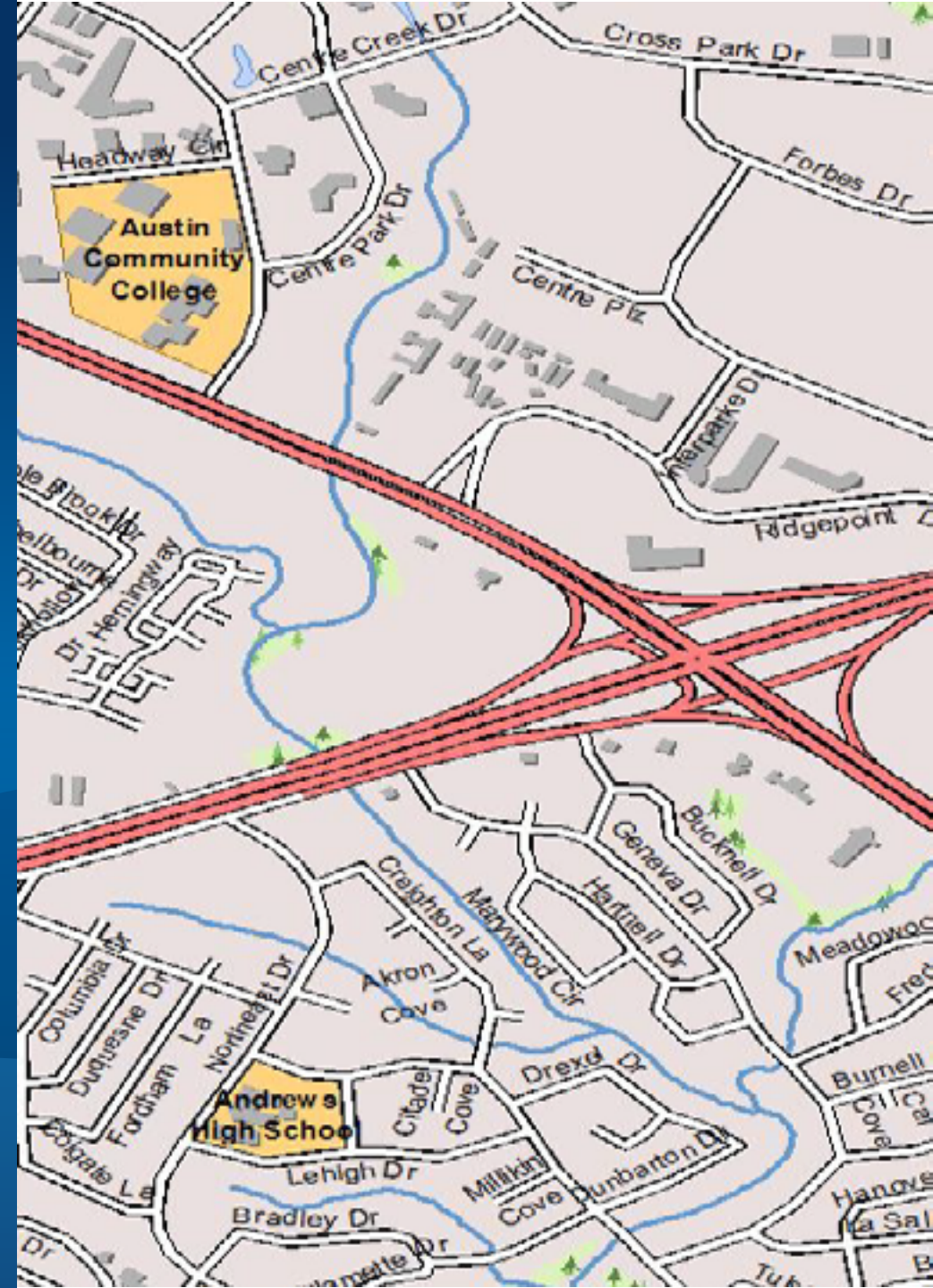
Sample representation rule

- **Lake representation rule:**
 - **marker layer**
 - **stroke layer**
 - **fill layer**



Demo

Working with representations



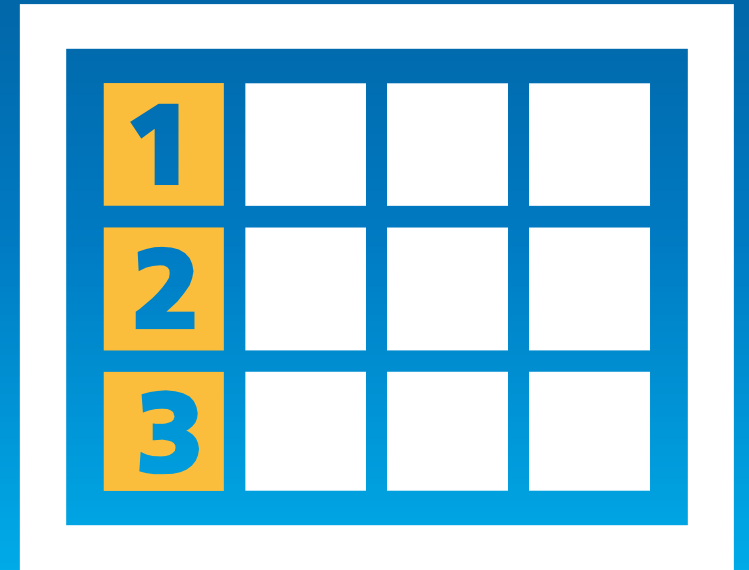
Geometric Effects and Marker Placement Styles



Representation rules

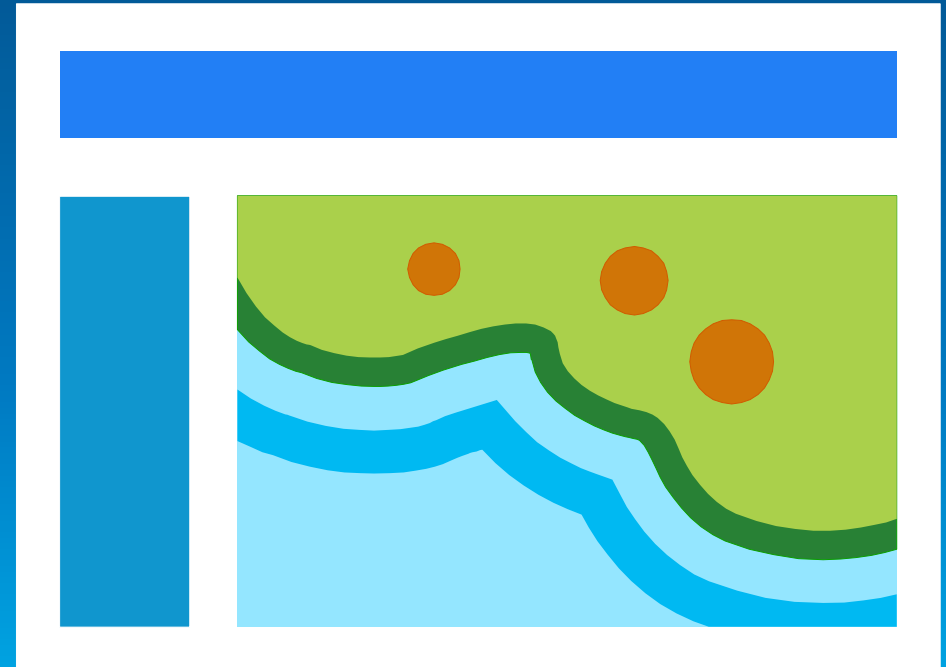
Representation rules contain:

- symbol layers- *drawing instructions*
- geometric effects- *dynamic geometry changes*
- marker placements- *marker position instructions*



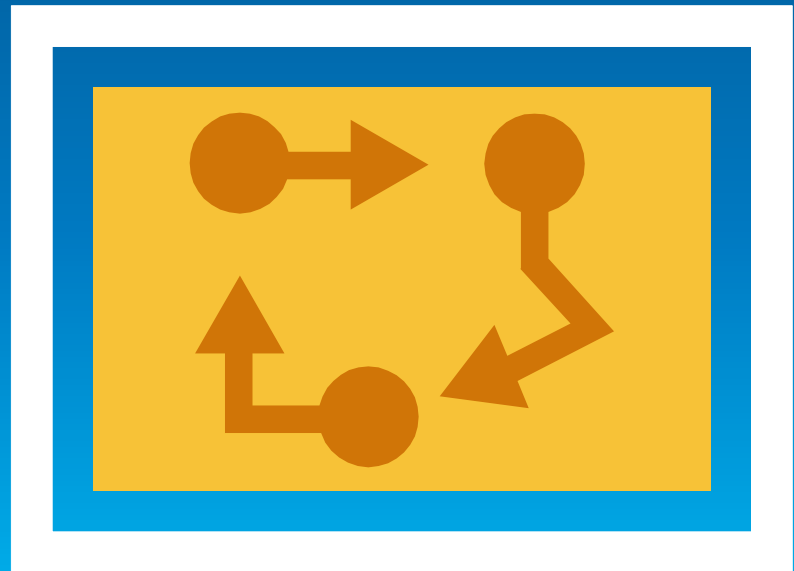
What are geometric effects?

- **Dynamically change geometry before symbol applied**
 - Affect all symbol layers, or just one
 - Can convert geometry type
- **Can work sequentially**
- **Extensible: write your own**



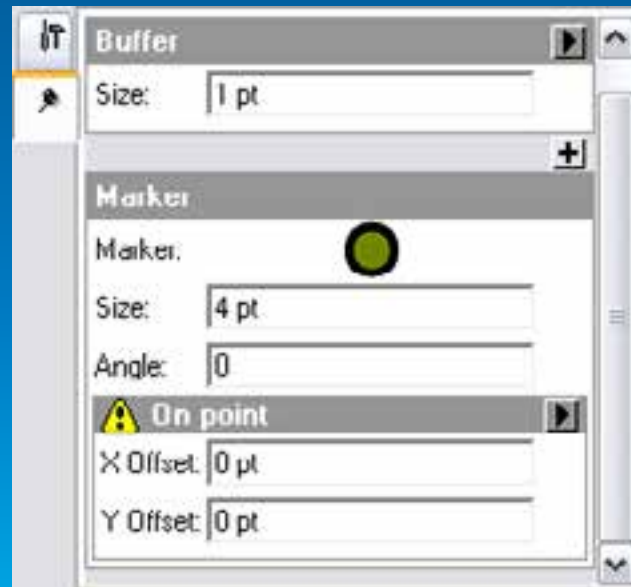
Chaining geometric effects

- **The dynamic output of one geometric effect becomes the input geometry for the rule**
- **Geometric effects can be chained together**
- **Geometric effects can be applied to the whole representation rule symbol, or just one symbol layer**

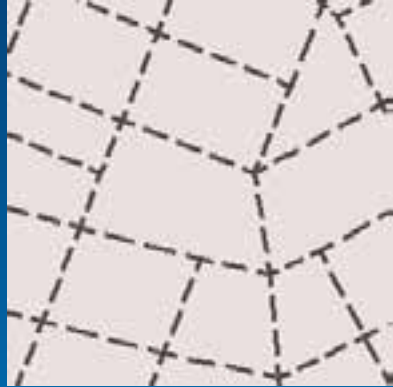


Representation geometry logic

- The geometry of the last effect in the chain must match the geometry of the symbol layer
 - Else a geometry logic warning appears



Geometric effects examples

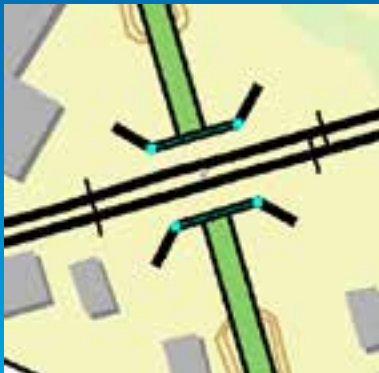


Dashes



Move

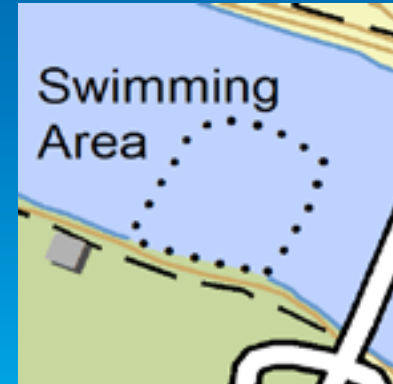
Extension



Offset Tangent

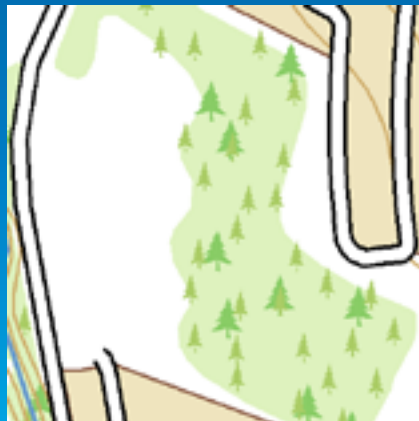
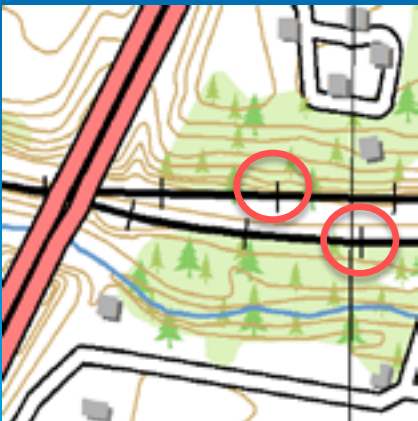


Supress



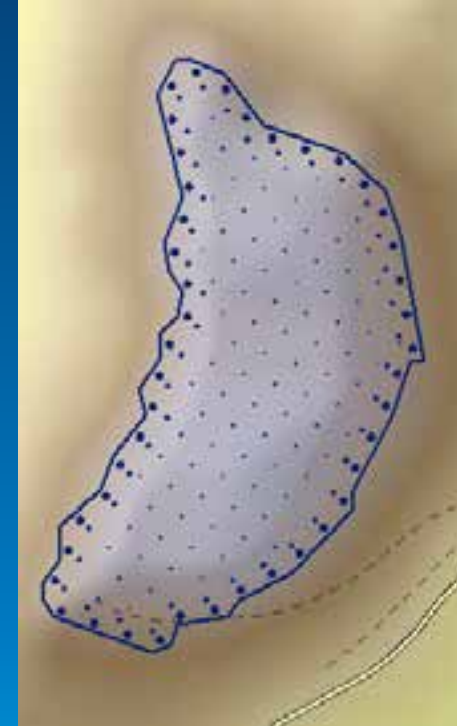
What are marker placements?

- **Position representation markers**
 - Along lines and polygon outlines
 - Within polygons
 - In relation to points
- **Extensible: write your own**



Marker placement example

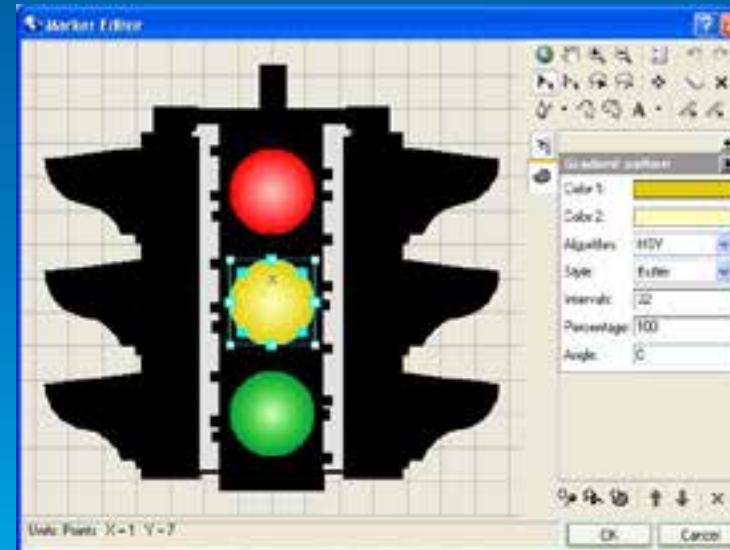
- **stroke layer-** *solid outline*
- **marker layer-** *large dots*
 - placement = along outline
 - offset = -3 pt
- **marker layer-** *medium dots*
 - placement = along outline
 - offset = -7 pt
- **marker layer-** *small dots*
 - placement = inside polygon
 - offset = -10 pt



Creating representation markers

Marker Editor

- Import font glyphs, edit vertices
- Draw polygons and lines
- Align, order, group, rotate
- Resize, erase, warp



Demo

Geometric effects and marker placements



Overriding representations



What are representation overrides?

Exceptions to the rule

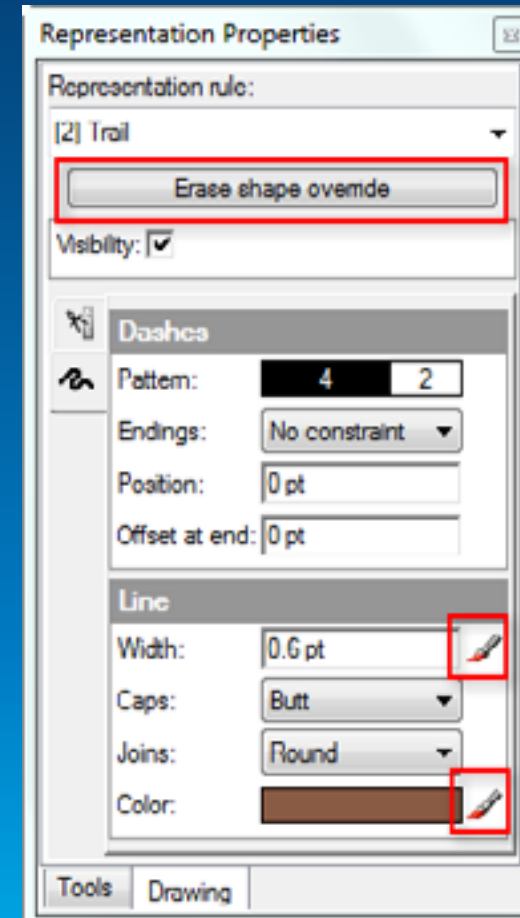
- Customize individual features
- Made while editing

Property overrides

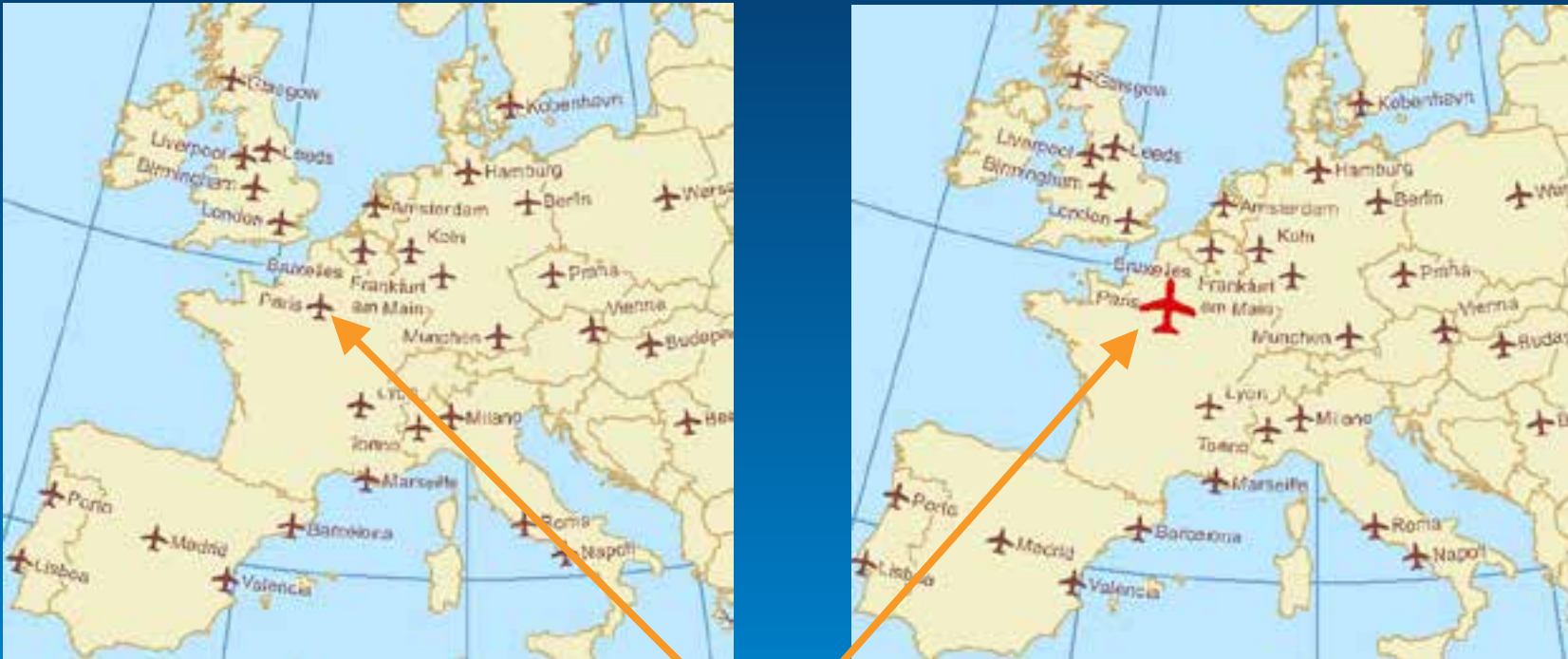
- Change any property of the rule

Geometry overrides

- Store alternate geometry



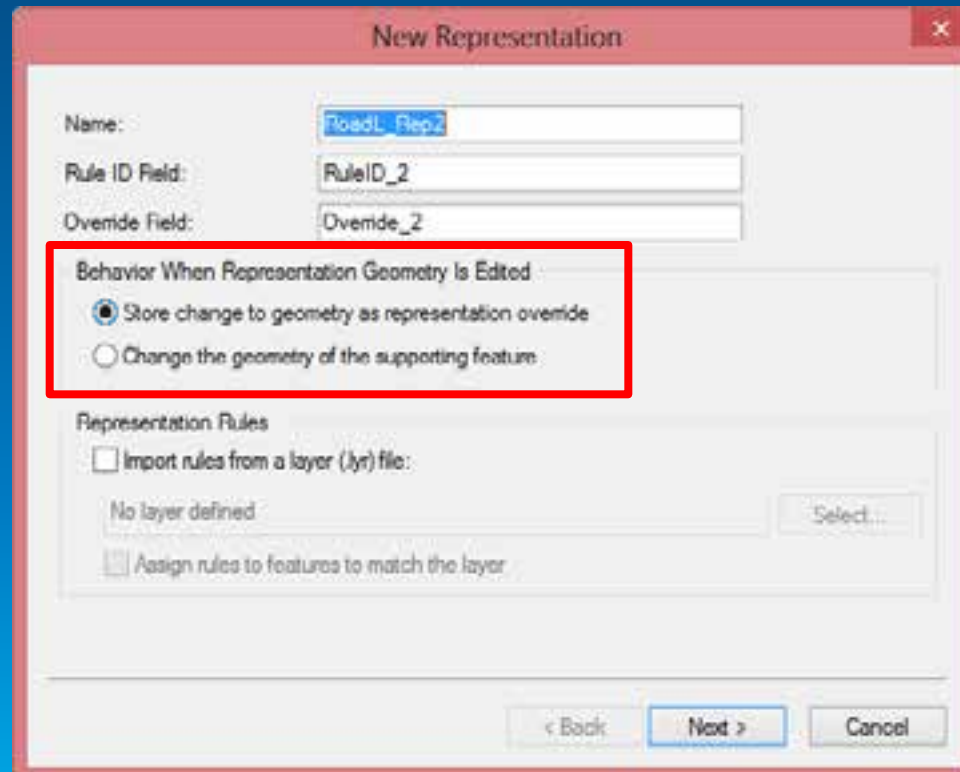
Property override



Create an exception to the rule

Geometry overrides

Must enable representation to handle geometry overrides



The screenshot shows the 'New Representation' dialog box with the following fields and options:

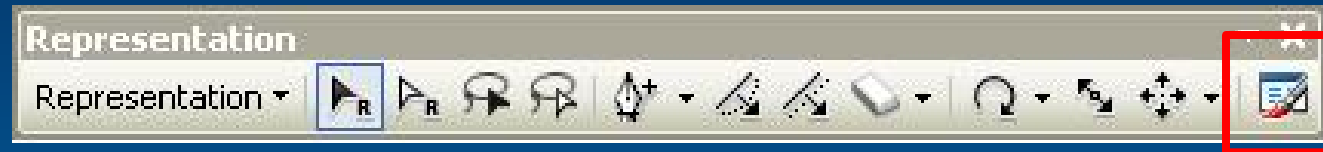
- Name: RoadL_Rep2
- Rule ID Field: RuleID_2
- Override Field: Override_2
- Behavior When Representation Geometry is Edited:
 - Store change to geometry as representation override
 - Change the geometry of the supporting feature
- Representation Rules:
 - Import rules from a layer (.lyr) file:
 - No layer defined
 - Select...
 - Assign rules to features to match the layer

Navigation buttons at the bottom: < Back, Next >, Cancel.

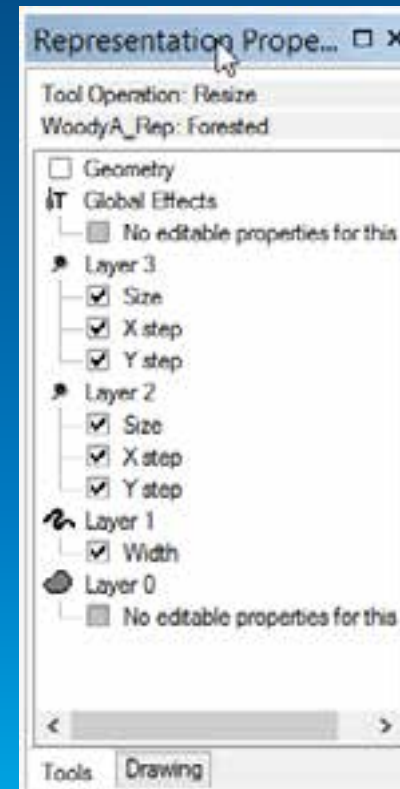
Creating overrides

- **Interactively with the representation toolbar**
- **Explicitly change rule property**
- **Use field in the attribute table to define override**
- **Cartographic Refinement geoprocessing toolset**

Interactive overrides



Use the Representation Properties window to manage feature overrides



Overrides in explicit fields

Link symbol layer properties to feature attributes

- Size, width, angle, visibility, etc.

Draw symbols based on current data

Any rule property can use attribute values

- Must use valid field data type

Reduce duplication of rules



The image shows a software interface for configuring a marker. On the left, a 'Marker' window has several input fields: 'Marker' (with a square icon), 'Size' (set to 6), 'Angle' (set to 0), 'On point' (with a play button), 'X Offset' (set to 0), and 'Y Offset' (set to 0). A yellow callout box points from the 'Angle' field to a table on the right. The table has a header 'Angle' and five rows of values: 35, 55, 22, 45, and 0.

Angle
35
55
22
45
0

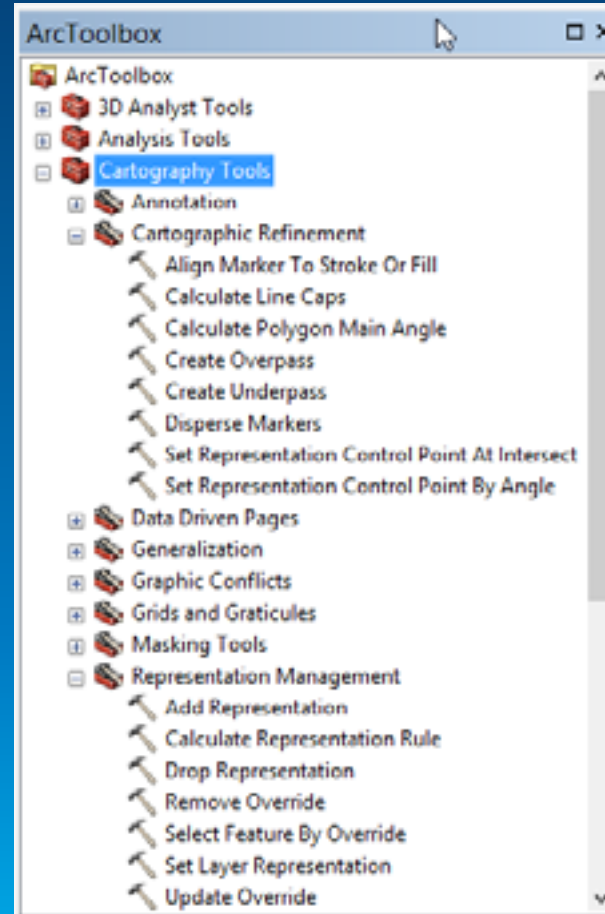
Using geoprocessing

Cartographic Refinement

- feature-level

Representation Management

- representation-level



Demo

Overriding representations



Thank you...

Session title = Working with Cartographic Representations

- Please fill out the session survey:

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Paper – pick up and put in drop box



Understanding our world.