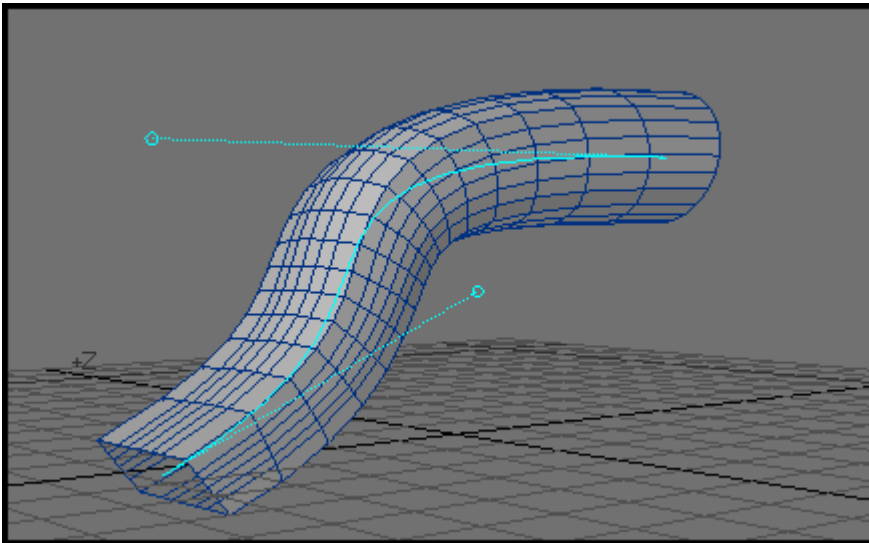


Name: Bezier Bridge  
File Name: awBezierBridge.p  
Version: 1.2.1  
Type: P  
Compatibility: 8.x+ (Win32)  
Last Update 01/17/2008  
Compiled for 64 bit: 10/07/2008  
Author: Artur Wawrzonkiewicz  
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License: FREE

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## Description

This plugin creates a connection/bridge between two polygons. The path of the connection is controlled by a single or multi-segment curve that can be either a Bezier curve (default) or a spline. The bridge extends in the direction of the polygon normals. If the shapes or sizes of the two polygons are not the same, the connection is linearly interpolated between them. If the point count of each polygon is different the plugin attempts to blend the bridge between them (see limitations).



*Example of interpolation*

## How to use

### Prerequisites:

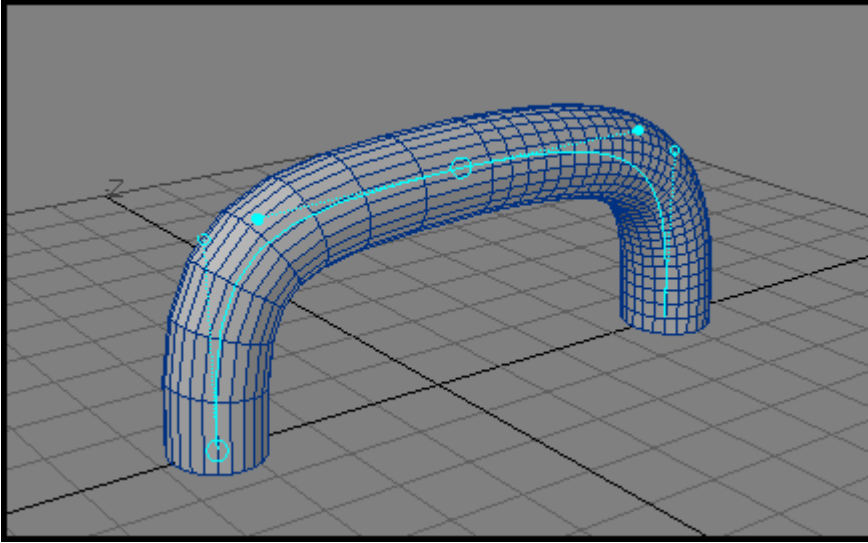
- Two polygons must be selected (explicitly or implicitly)
- Both polygons must be planar

Select two polygons and run the plugin. Initially you are given two control points and a single segment curve. The curve spans between two endpoints placed at the centers of the polygons.

You can add new endpoints (segments) by simply *right-clicking* anywhere in a viewport. The endpoints are marked with large circles. If you are using a Bezier curve you also get two control

points per endpoint except the first and last, where you get only a single control point. If you are using a spline curve you get two optional control points, one at each end of the curve. You can move the endpoints and control points with the mouse. You can delete an endpoint by option-right-clicking (Windows: control key) on it.

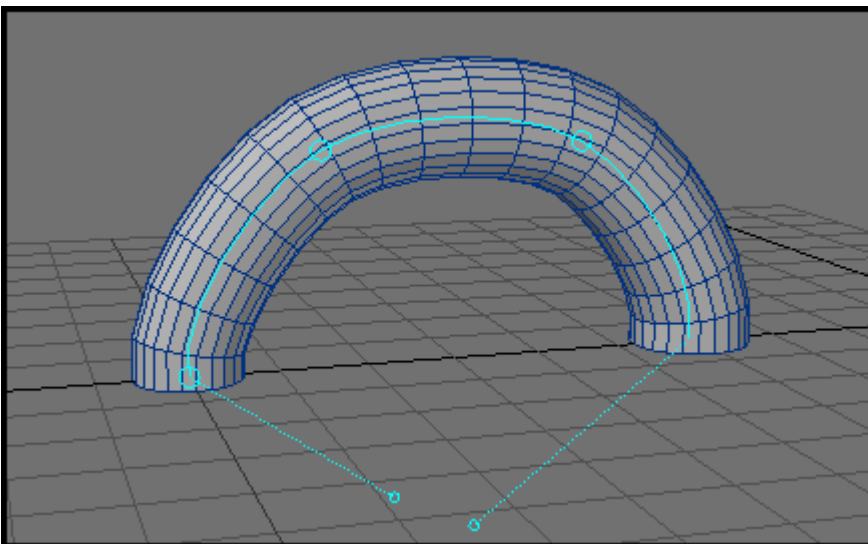
**Note:** although the first endpoint is also marked with a large circle it cannot be moved or deleted. It is there for two purposes: you can click on it to change the number of curve subdivisions in the first segment or you can double click on it to switch between Bezier and spline curve (see the numeric panel for more info).



*Example of multi-endpoint Bezier curve with variable number of subdivisions per segment*

By default the control points of newly added endpoints on a Bezier curve are coupled. To change the coupled/decoupled mode of a pair of control points double click on one of the points. Coupled control points are marked with solid small circles.

Double click on the control points that are at the polygon centers to constrain those points to the corresponding polygon normals. You can also hold the option key (Window: control) to have the constraint to take effect while dragging those points.



*Example of multi-endpoint spline curve with optional control points*

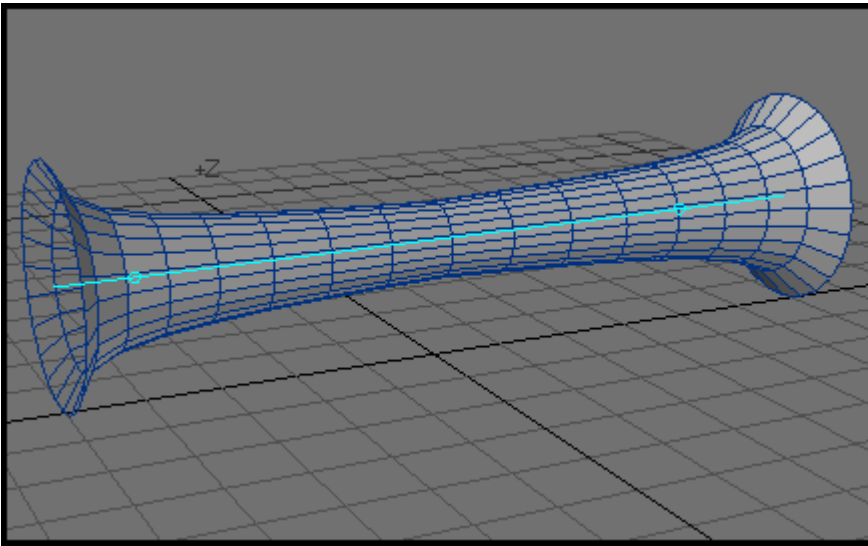
### **Additional controls available only in the numeric panel:**

*Subdivisions* – Sets the number of subdivisions for **all** curve segments. This is also the number of subdivisions used for newly added segments. If you adjust this value it will override any per-segment subdivisions.

*Segment* – This is currently active curve segment that is used in conjunction with the *Segment Subdivisions* control. You can also select the segment by clicking in on the corresponding endpoint in the viewport (including the first one at the center of the first polygon). First segment starts at the first endpoint and so on. Adding a new endpoint also updates this value to the newly created segment.

*Segment Subdivisions* – Sets the number of curve subdivisions for the currently selected segment.

*Tension* – Tension of the shape interpolation



*Example of tension set to 0.5*

*Spline Mode* – Switches between Bezier and spline curve. You can also change this by double clicking on the first endpoint in one of the viewports. This option is off by default.

*End Controls* – Enables/disables optional control points for spline curve. This option is off by default.

*Remove End Polygons* – Select to remove the original polygons. This is checked by default. Uncheck this if you want to have both ends of the bridge closed (you will need to manually flip the original polygons afterwards).

### **Additional notes**

If the first selected polygon is in subpatch mode the bridge is also built in this mode (see limitations). The bridge inherits the surface of the first selected polygon. The following values are retained between subsequent runs (until the Modeler is restarted):

- Subdivisions
- Tension
- Spline Mode flag
- End Controls flag
- Remove End Polygons flag

## History

### Version 1.2.1

Removed 2-point polygon left by mistake during debugging.

### Version 1.2

Added support for different number of points per polygon

Improved shape blending

Added ability to retain settings between each run

### Version 1.1

Added ability to switch between Bezier and spline curve

### Version 1.0

Added support for multiple endpoints on the curve

### Version 0.9 Beta

First release

## Known limitations

Switching between polygon/subpatch modes while the plugin is running is not supported.

Current version (8.x+) will not run on polygons with Catmulk-Clark subdivisions enabled.

The plugin may not work as expected for come of the more convoluted concave polygons.

## Disclaimer

(Just in case...)

This software is provided "as-is" and without warranty of any kind.

In no event shall the author ( Artur Wawrzonkiewicz ) be liable for any damages of any kind.

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