

# The Complete Guide to Blender Graphics

## Supplement-12

### Grease Pencil – Bsurfaces

In Supplement 07, **Retopology: Creating a Mesh**, the **Bsurfaces Add-on** was used to replicate part of a mesh surface.

#### Bsurfaces - Definition

The following definition of Bsurfaces is sourced from the Blender Wiki:

“Bsurfaces is a modeling and retopology tool which combines the use of freehand strokes, bezier curves, or loose edges to generate polygonal surfaces. It can be included in a traditional polygonal and subdivision modeling workflow, speeding it up substantially.

Bsurfaces is a Blender Add-on, it can be used to build both open and closed shapes, extrude selections, bridge between two sections, having full control over the shape, direction, and twisting of the final surfaces. The output is a clean topology composed of quadrilateral faces. Triangles are also possible when building surfaces using crossing strokes.

The different options can be modified interactively, allowing the artist to see how they affect the resulting surfaces in real-time.”

Replicating a mesh surface is one use of the **Bsurfaces Add-on**.

Bsurfaces works in conjunction with the **Grease Pencil**.

#### Video - Tutorial

To add meaning to the Wiki definition and see how Bsurfaces operates it is recommended that you look at the following Youtube video by Oliver Villar (Author of Learning Blender published by Addison Wesley):

<https://www.youtube.com/watch?v=9j2a56HtN0g>

#### Understanding Bsurfaces

To assist in understanding the Wiki definition and applying Bsurfaces in Blender work through this exercise.

To use **Bsurfaces** you must have the Add-on activated. Go to; User Preferences window, Add-ons, Mesh and check (tick) **Mesh: Bsurfaces GPL Edition** (Figure 12.1). In later versions of Blender, this will be Version 1.5.1 of the Add-on.

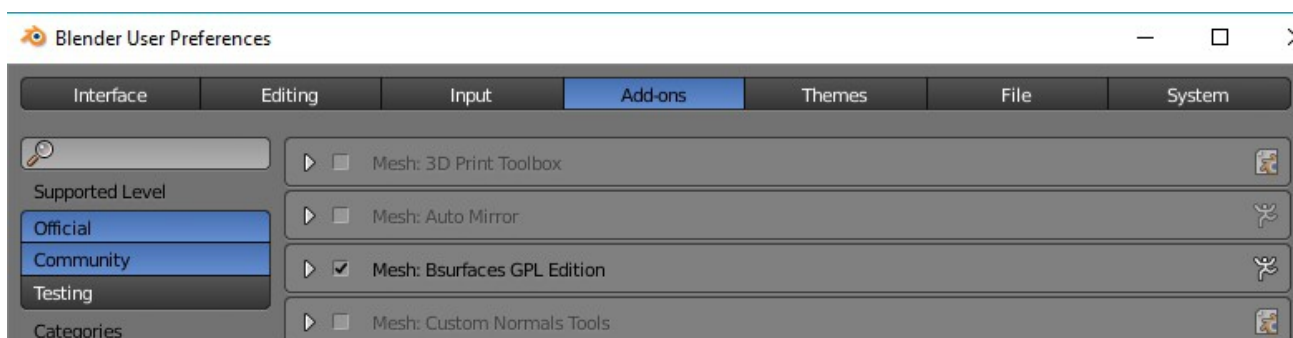


Figure 12.1

While in the User Preferences window, open the Editing tab and under Grease Pencil check that **Simplify Stroke** is **NOT** ticked (Figure 12.2).

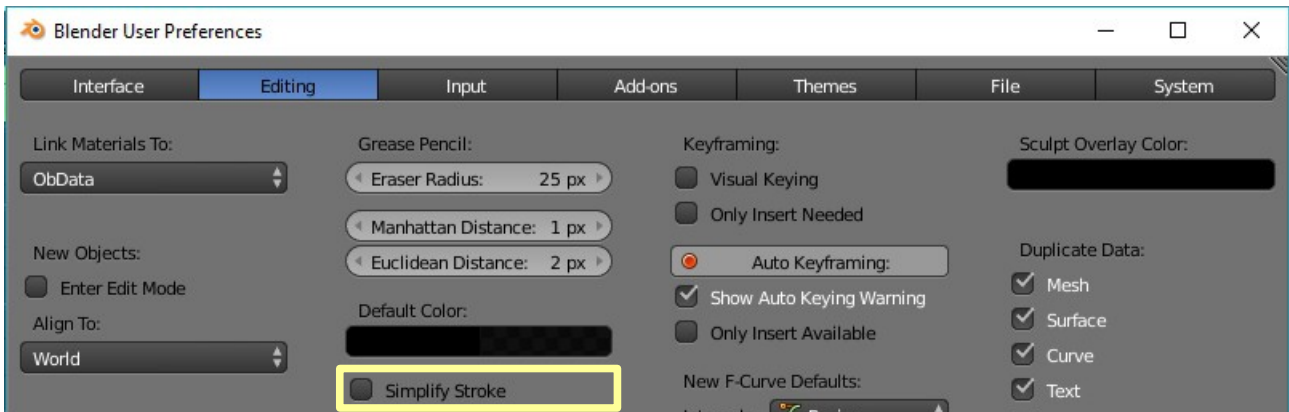


Figure 12.2

In the **3D window**, delete the default Cube object. Note that when the Cube is deleted, **Object Mode** is the only viewport option available in the 3D window header (Figure 12.3).

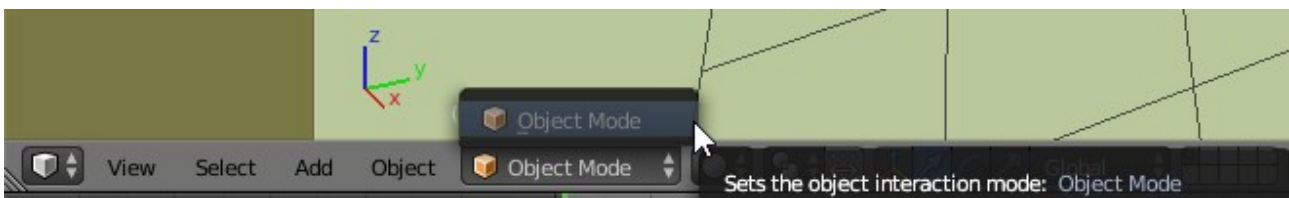


Figure 12.3

The 3D window is in User Perspective view.

Add a Plane object to the Scene in the 3D window.

With the Plane selected change to **Edit mode** and press the **A Key** to deselect the Plane.

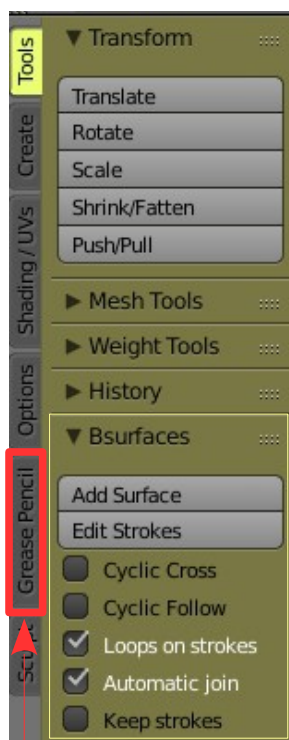


Figure 12.4

**Note:** The **Bsurfaces** tab only displays in the **Tool Panel, Tools tab** when the Add-on is activated and when the 3D window is in Edit mode (Figure 12.4).

At this point, the Plane is deselected in the 3D window in Edit mode.

As stated in the Blender Wiki, Bsurfaces combines the use of freehand strokes, bezier curves, or loose edges to generate polygonal surfaces. This statement doesn't tell you how to do this in practical terms. In this exercise, freehand strokes drawn using Blender's Grease Pencil will be combined with the vertices of the Plane object to generate a new Object.

**Note:** To draw Strokes in the 3D window the Grease Pencil tab does **NOT** have to be selected in the Tool Panel. Simply position the mouse cursor in the 3D window where you wish to start the Stroke, press and hold the D Key, click LMB. The mouse cursor becomes a Grease Pencil brush which is in Continuous Draw mode. Hold LMB and drag the mouse to draw a Stroke. To erase a Stroke repeat the operation clicking RMB.

**Recap:** You have a Plane object in the 3D window in Edit mode. The Plane is deselected.

Grease Pencil Tab

Draw Strokes as shown in Figure 12.5. Be sure to draw Strokes in the same direction from top to bottom.

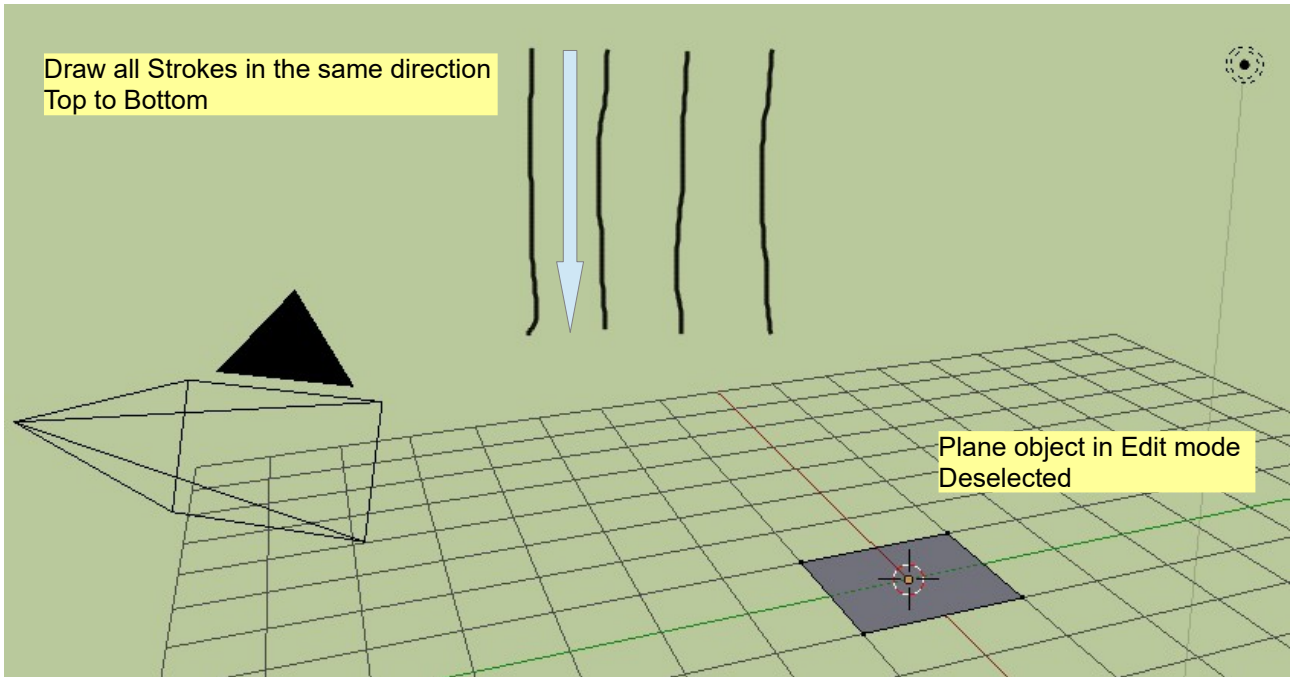


Figure 12.5

Press Esc to exit Draw mode.

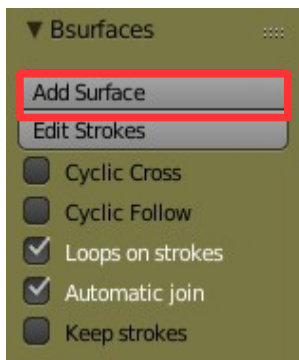
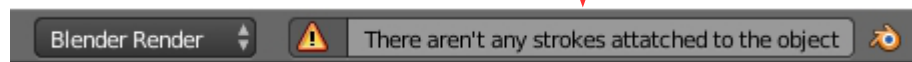


Figure 12.6

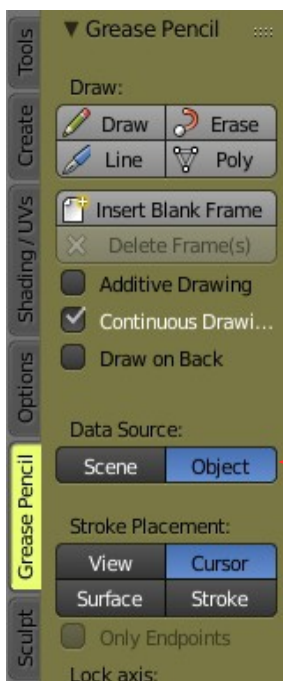
In the **Tool Panel, Tools tab, Bsurfaces tab**, click **Add Surface** (Figure 12.6).

In the Info window header, you will see an Error Message: **There aren't any strokes attached to the object.**



Info Window Header

Figure 12.7



Although it isn't necessary to have the **Grease Pencil tab** opened in the **Tool Panel** to draw Strokes, it is necessary to have the correct settings activated.

By default **Data Source: Scene** is active in the Grease Pencil tab meaning Strokes are associated with the Scene. **Change Data Source to Object** (Figure 12.8).

The Strokes are required to be associated with the object (the Plane).

**Delete the Strokes that have been drawn and redraw.**

**Note:** To delete the Strokes drawn while Data Source Scene was active, Data source Scene has to be active.

Change Data Source to Object  
Click LMB on Object to highlight blue

Figure 12.8

In the **Bsurfaces** tab, Click **Add Surface** again. The Strokes are converted to a Mesh Surface (Figure 12.9).

You are still in Edit mode, press the A key to select the vertices and display as shown in the diagram.

While in Edit mode you may delete the original Plane's vertices and edit the new mesh.

**But! Before performing any operation see the Last Operator panel in the lower LH corner of the 3D window (Figure 12.10).**

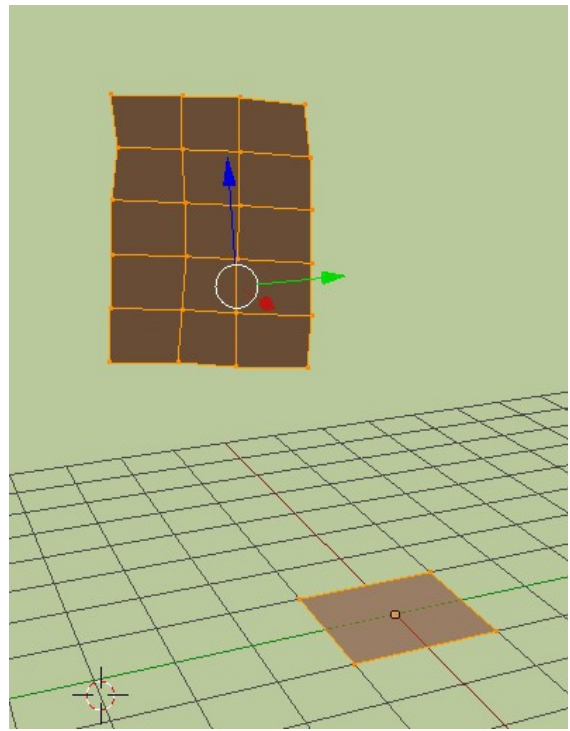


Figure 12.9

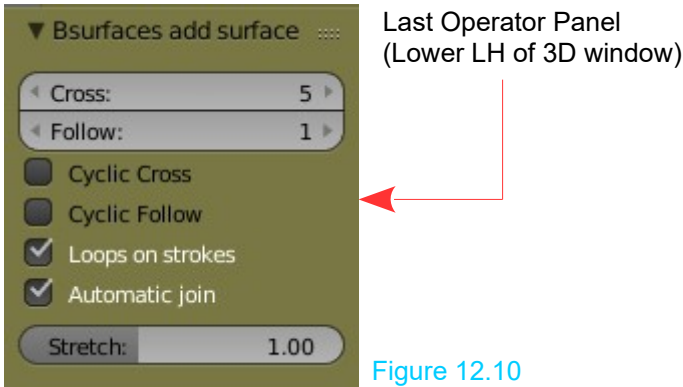


Figure 12.10

The original Plane consisted of four vertices. Four vertical Strokes were drawn in the 3D window. The new surface has four vertical rows of vertices corresponding to the four vertical Strokes. By default, the new surface has been created with five vertical divisions. The five divisions correspond to the **Cross: 5 value** in the **Last Operator Panel**. Increasing the Cross value increases the number of vertical divisions. Increasing the Follow value increases the number of horizontal divisions.

**Note:** vertical and horizontal divisions only correlate to the new surface since the Strokes were drawn vertically in the 3D window.

**Note also:** The new surface is constructed in a plane corresponding to the view displayed on the Screen at the time of drawing Strokes.

## Building On the Mesh

With the new mesh surface created you can add to it (Figure 12.10).

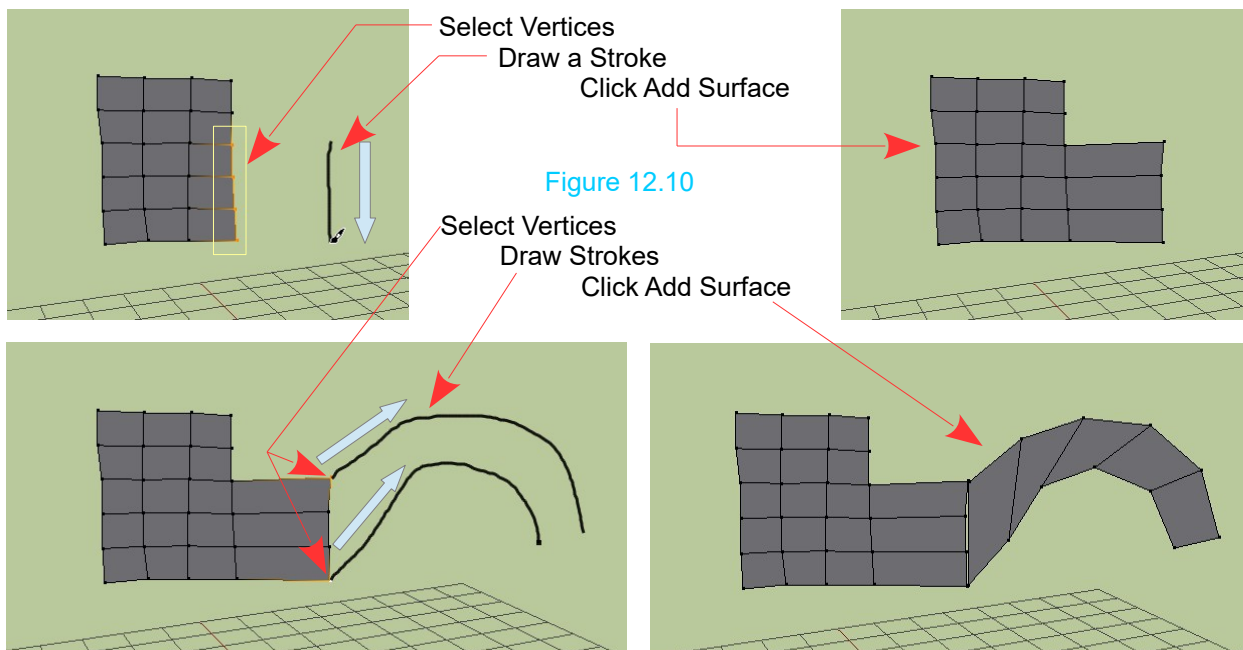
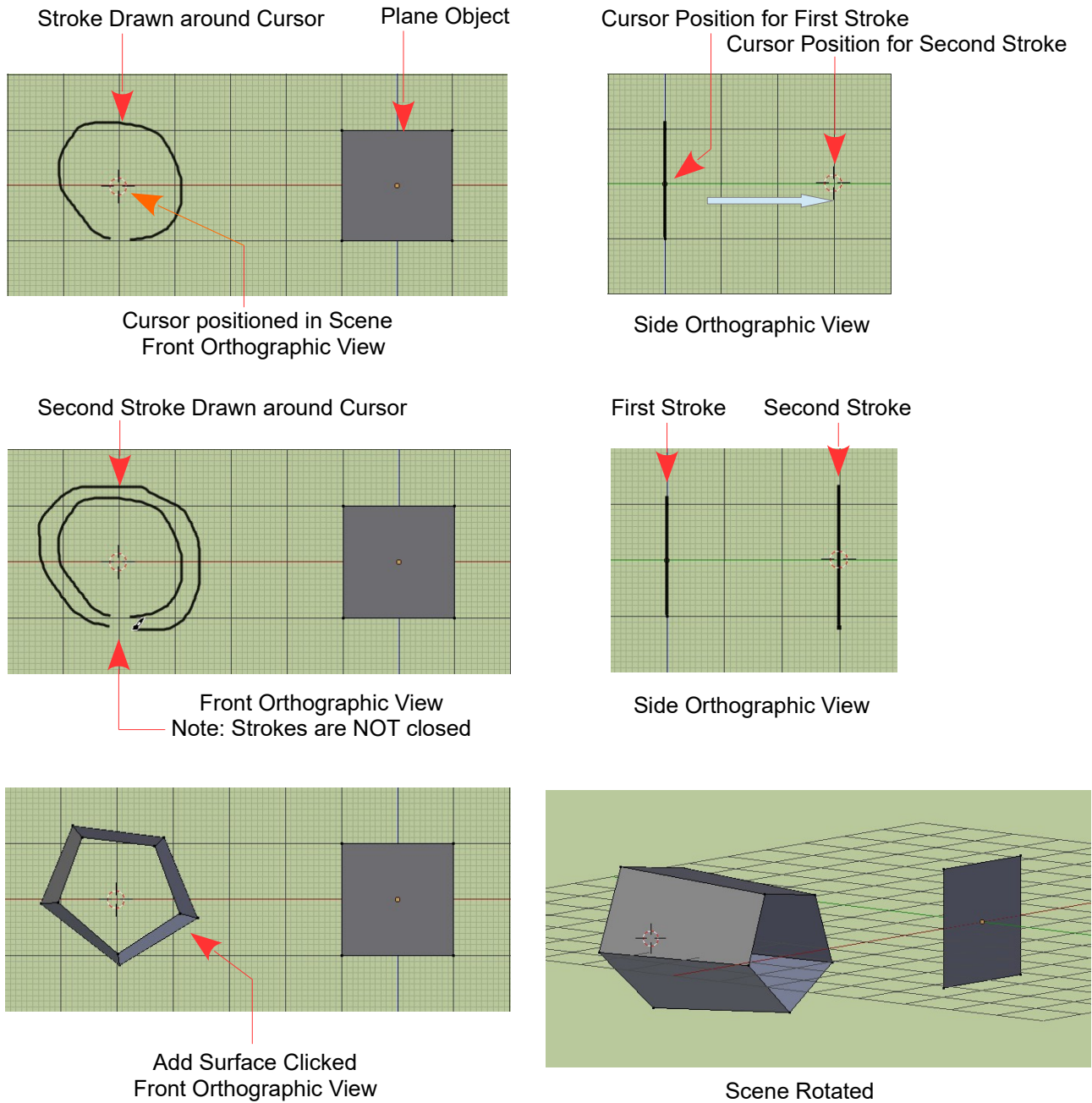


Figure 12.10

## Creating 3D Objects

Figure 12.11



**Note:** The circular Strokes were not closed when drawn, however, the final surface is closed since Automatic Join is checked in the Bsurfaces Last Operator Panel (Figure 12.12).

## Draw Strokes Direction

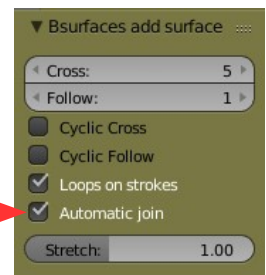
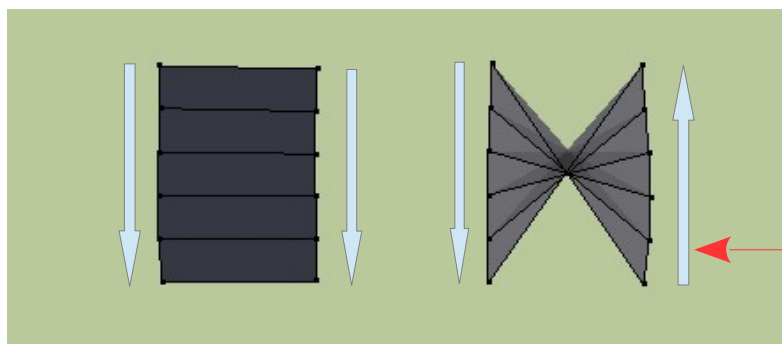


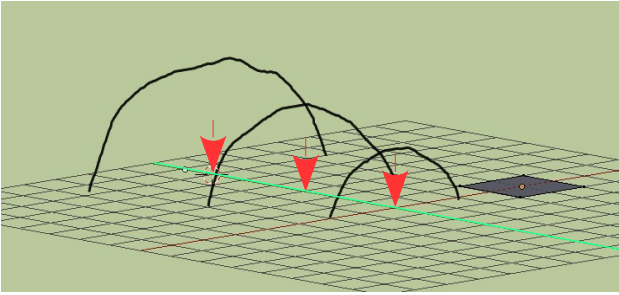
Figure 12.12

Figure 12.13 demonstrates drawing Strokes in reverse direction.

Figure 12.13

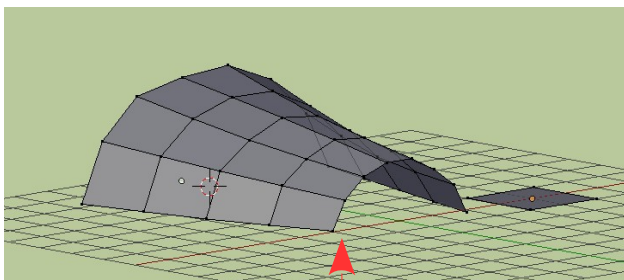
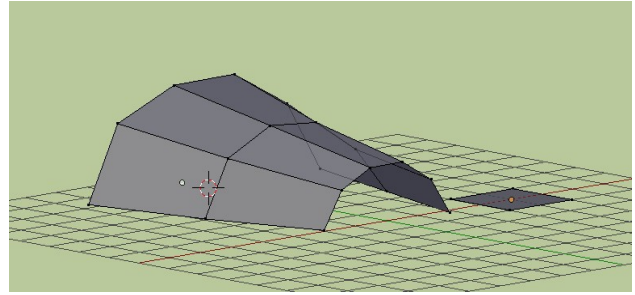
## More 3D Objects

Three Strokes (Arcs) at different Cursor Positions

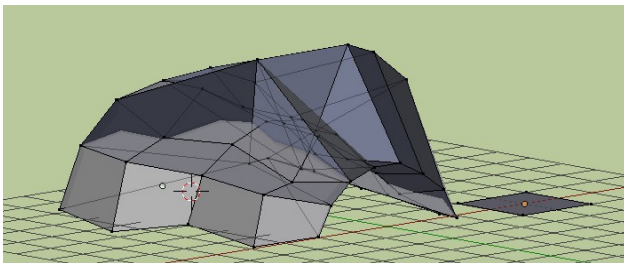
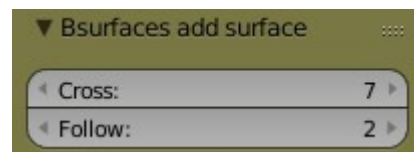


Position Cursor in Side View  
Draw Strokes in Front View

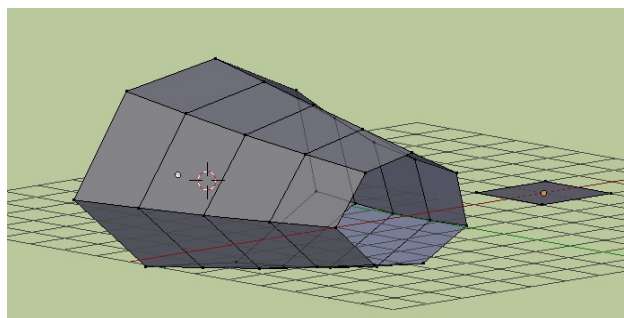
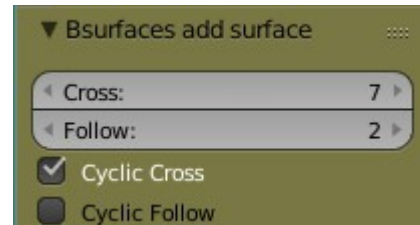
Add Surfaces creates a Mesh Object



Bsurfaces Cross and Follow values altered.



Bsurfaces Cyclic Cross Activated



Bsurfaces Cyclic Follow Activated

