**Blender : Modelling with cross sections**
**By** *Toussaint Frédéric*
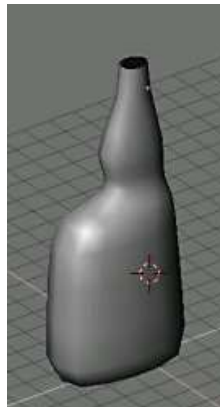**Translated from french by** *Saraja Olivier*

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# I n t r o d u c t i o n

Since Blender 1.58, a new tool that enables you to model complex shapes using the cross sections of the object has been introduced. It is called skinning and works almost the same way the hull of a ship is built. This tutorial is designed for any level and reminds you of Blender's very basics. We'll learn how to shape the can of a sprayer (the missing parts will be the purpose of new tutorials).
Please note that this tutorial is based on the one written by B@rt.

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## S t e p   1 :

We'll start by creating the main cross section of our object.

If you have a square mesh in the middle of your working space when starting Blender, use the **right button** of the mouse to select it and then hit the **X–KEY**. Confirm *"erase selected"*.

In the top view (**NUM–7**) you must add a *"surface curve"* (**space bar**: *add–>surface–>curve*). Please note that classic curves don't work when using this modelling method. Once the object added, you can also note that your are automatically in the *edit mod*e, as shown by this button [image], which is toggled on. If everything went right, you should have the following result :
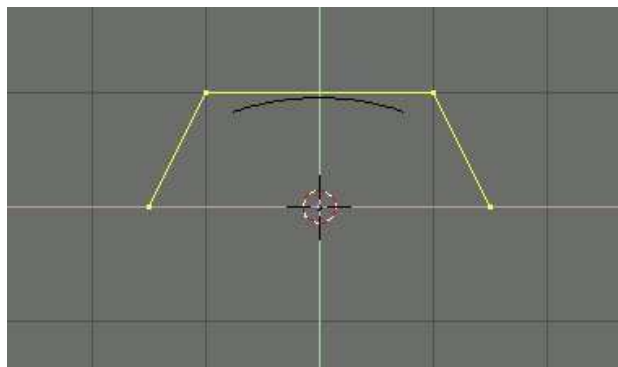


The yellow color of the vertices indicates that they are **selected**. To deselect all or select all, press the **A–KEY**. To select a single vertex just select it with the **right mouse button**. To select many vertices at once, press the **B–KEY** to create a box selection tool and then move your mouse while holding the left button of the mouse.

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## S t e p   2 :

Select the **last** vertex. Create many more of them by using the **CTRL–KEY** plus the **left mouse button**. Locate your new vertices as shown below, but don't try to mirror this picture exactly because we will move the vertices later to achieve the proper result.
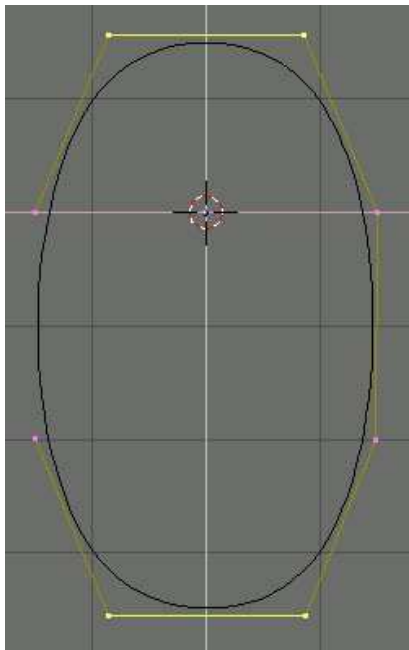


When all the vertices are created, you can note that your curve **doesn't close**. To force Blender to close it, you must press the **C–KEY** ("*make cyclic*"). To **move** some vertices, you just have to select them (*see step 1*) and press the **G–KEY** (*"grab"*). To **stop** moving them, press the **SPACEBAR**. If you want the displacement to follow a given **axis**, use the **arrow keys** of your keyboard.
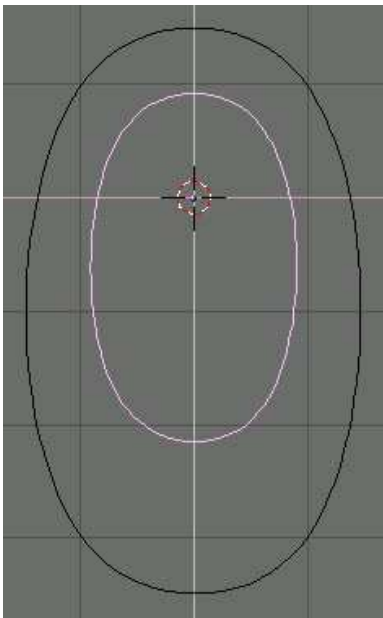
Take all the time needed, the shape of this curve is the main cross section of your object.

Now you should have a shape not far away from this one. You can leave the *edit mode* by pressing the **TAB–KEY** or the  button.

The next step of this tutorial will show you how to duplicate this shape.

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## S t e p  3 :

Toggling mode makes disappear the building tools of your curve, and this curve should now appear in *pink*. This means that the curve is **selected** (if it isn't the case, you must select it by *right clicking* on it). Once the curve is selected, we will make a *copy* of it by pressing **SHIFT+D**. We'll start by the bottom of our sprayer–can, so the new curve must be smaller : hit the **S–KEY** and move your mouse to apply some scaling (**SpaceBa**r to validate the modification). You should obtain something like this.

In the next step we will repeat the same action and move the layers of the sprayer–can along another axis to get some volume.

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## S t e p   4 :

Go to the *side view* by pressing **NUM–3**. Select the first curve and **move** it (**G–KEY**) upward (use the arrow keys to move them with more accuracy). Once done, **duplicate** the curve (**SHIFT+D**), move it *upward* and then reduce slightly its size (**S–KEY**, as before). Repeat as many times as needed with the other curves to get something like this :
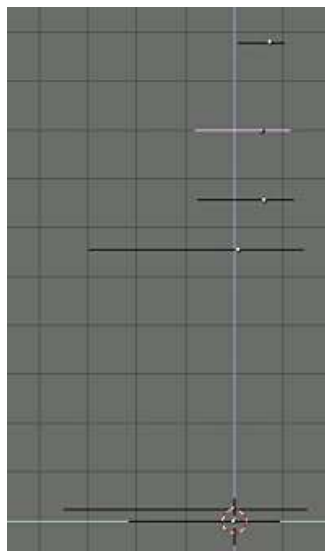


Do not bother now if the scaling of your different layers are not perfect at this stage, because we can change them later.

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## S t e p   5 :

The top of our sprayer–can should be circular. To achieve this, select the highest curve and edit it (**TAB–KEY** or 🔲 ).  B–Select vertices and move them to get a circular shape. Don't forget to leave the edit mode when the modifications are done.
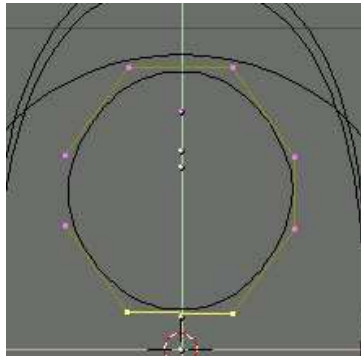


**Be careful** not to delete any point, because for the surface to be skinned from these curves, each layer **must** have exactly the same number of vertices**.**
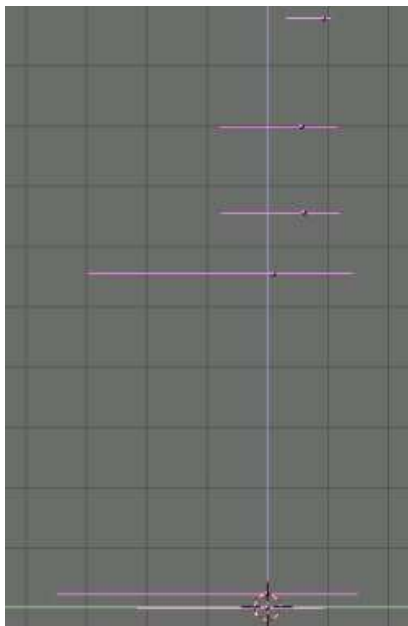
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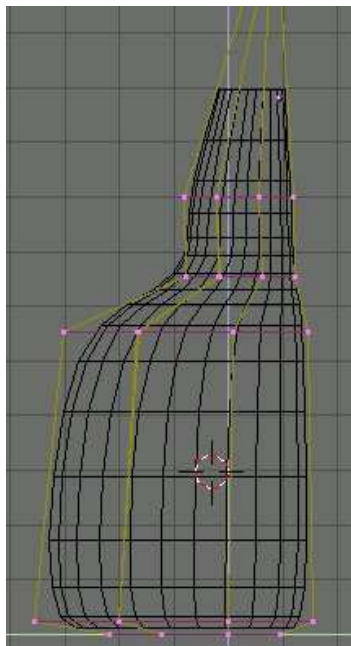*LinuxGraphic.org*

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## S t e p   6 :

**Select** all the curves (**B–KEY**) and press **CTRL+J**. Validate when "*join selected NURBS*" appears.
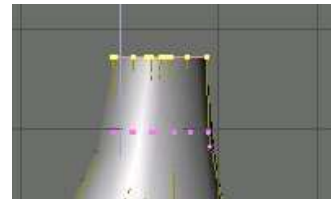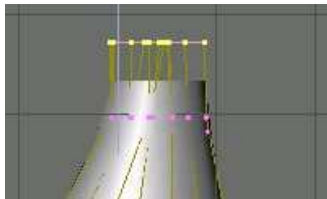
Go back in *edit mode*, select all (**A–KEY**) and then press the **F–KEY**. A surface is instantly created according your curves. You can make sure by pressing the **Z–KEY** and pay it a view with the Zbuffer. You should note that the newly created surface doesn't go up to the circular end we made before. We'll see in the next step how to fix this.

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## S t e p  7 :

Just as we saw before, the surface doesn't go up to our **last** curve. This can prove annoying during with fine modelling, so Blender has a function that helps correct that. Go to the *edit buttons window* [▢] and enter the *edit mode* (**TAB–KEY**). Select with the **B–KEY** the highest curve of your object and the push the [ **Endpoint U** ] button.

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## S t e p   8 :

If everything went right, you can now pay a pleasant look to your hard work. Don't forget to save your work (**F2–KEY**) as the missing parts of the sprayer will be modelled in other tutorials, because they use other modelling skills.
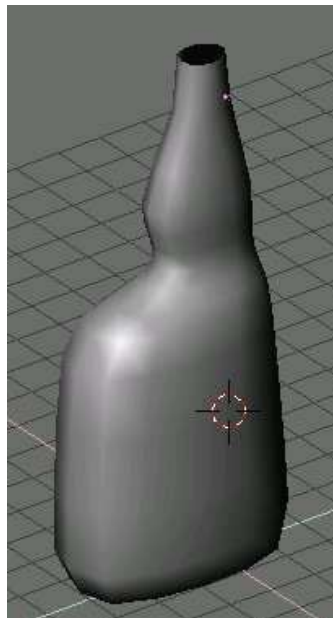
Thank you for your interest, and feel free to send me your remarks.

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