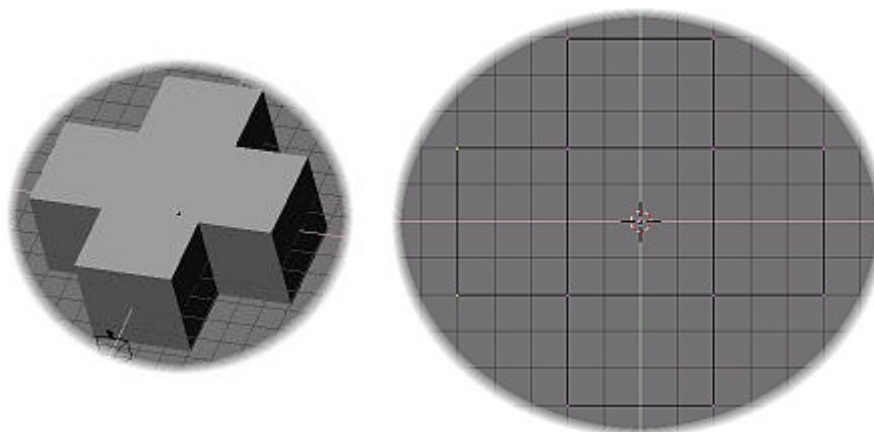# SubSurf Modelling

by Malefico

Modelling human heads, hands or any other complex solids is now easy with the new powerful tool Blender 2.2x offers: Catmull-Clarke's Surface Subdivision (or Subsurfs). In spite of its nasty name we'll learn how fun subsurfs are !

Magical Meshes

We'll start with a very simple project : modelling a water tap. Our first step will be adding a Cube to an empty scene (SPACEBAR -> ADD MESH -> CUBE)
In front view and without leaving Edit Mode we're going to select (B) all four vertices of a face (or side in this view) and extrude them 3 grid units. To ensure we're extruding allways the same units, keep CTRL pressed as you drag your mouse. Repeat this operation for the other three faces till get something like below:

This will be our "skeleton" or base mesh. Now we're going to model all curves of our water tap. How ? keep on reading and you'll see...
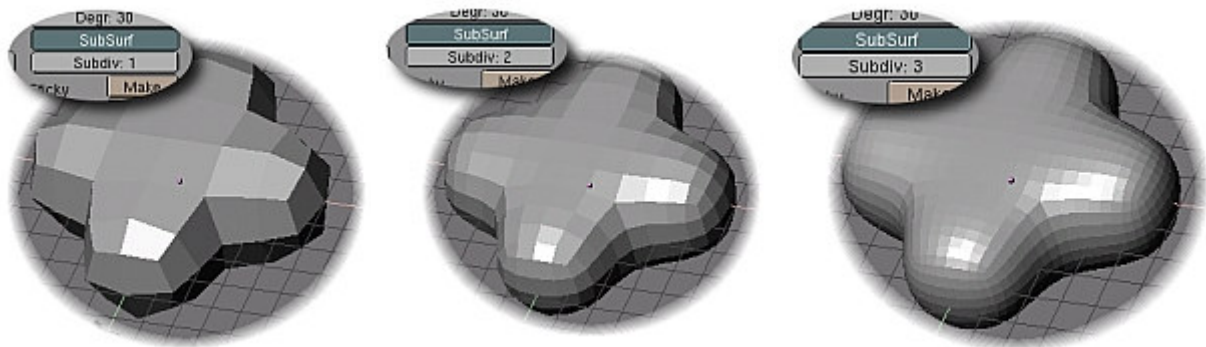
The trick unveiled...

Once we're finished modelling the "cross" leave Edit Mode. Press F9 to see the Edit options. The interesting ones for us are the ones to the left of the panel.
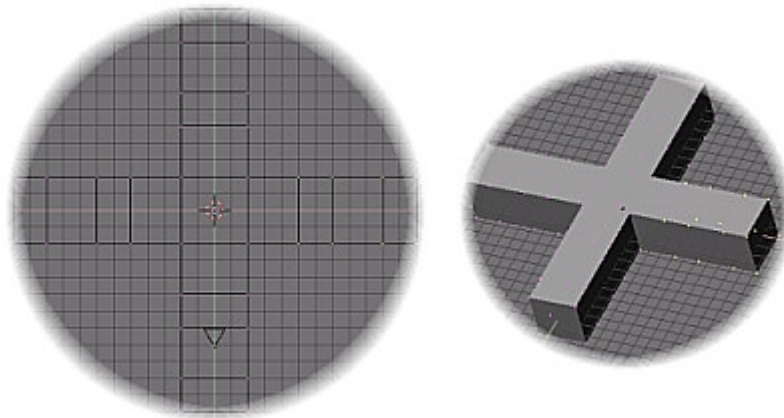
These are the "Subsurf" and "Subdiv" buttons.

SubSurf button activates or deactivates surface subdivision while SubDiv number tells Blender how many subdivisions per face are to be performed (rather obvious, right ?). Of course you don't have to believe me. Select the mesh and press SubSurf...
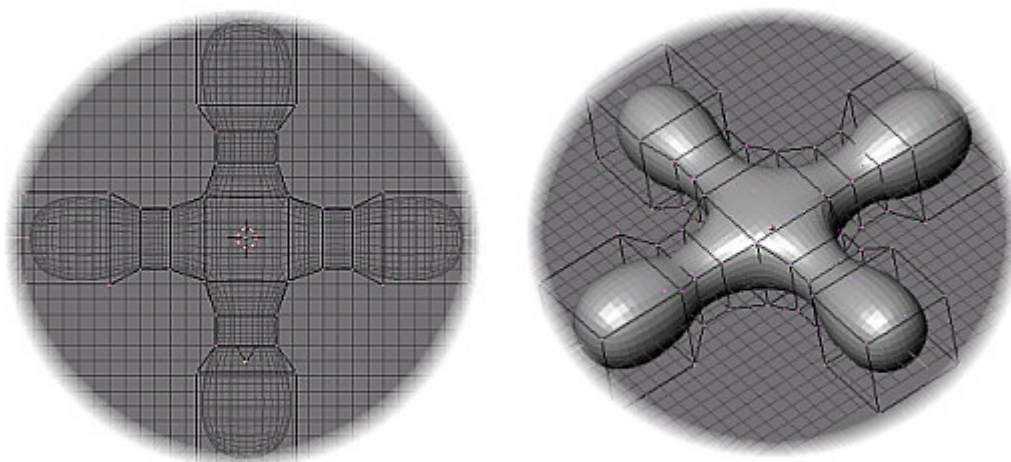
Magically a soft curved mesh will fill in our initial "square" mesh. With a trick like this we could easily transform my old aunt Carmen into one Baywatch babe !. Logically the higher the number of subdivisions the bigger the pain our processor will suffer when it has to refresh the screen. For instance my poor Celeron 366 starts to cough when SubDiv=4 !.

Let's come back to Edit Mode and keep on extruding. Let's do it three more times per "arm" of the cross. We'll finally get something like this:
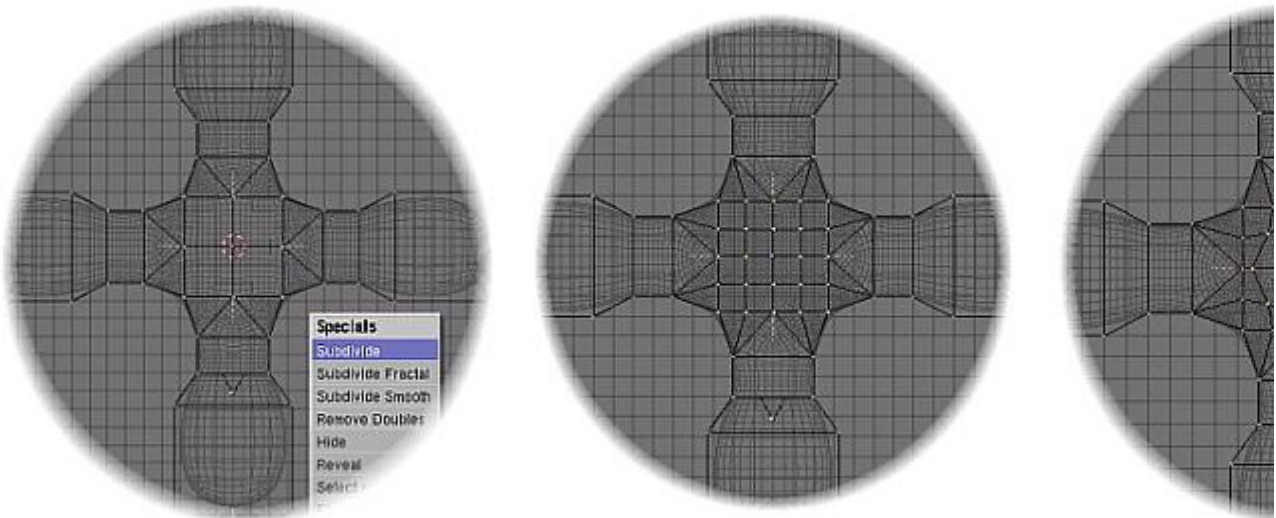

Now select homologous vertex groups from each part of the cross and scale them up or down (S) or even move them towards the cross' center (G but always keep pressed CTRL to avoid losing simmetry). With a little patience we're finally getting something like this:
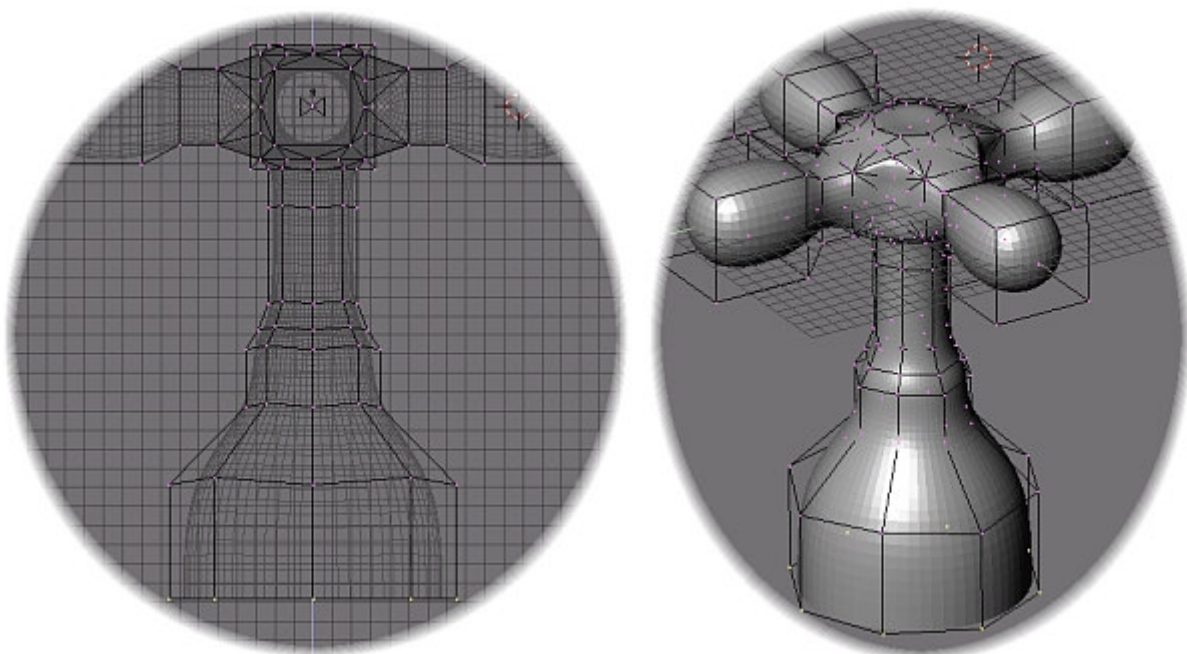

We can always activate or deactivate SubSurf if the screen refresh gets too heavy for our machine. It's only needed to be activated when we'll render the image.

We can also subdivide som eparts of the mesh (W in Edit Mode) to get some parts of the model right. For instance I have selected the center square and subdivided a couple of times to create a circle. After subdivision I only had to move some vertices to get the round shape:

We're almost done, now select the central circle and extrude in side view to create the axial part of the water tap (sorry, I don't know how you call that). Take care of not selecting the vertices of the opposite face (you can't tell one face from the other in front view). Extrude a couple of times (E).

While you extrude you can scale vertices a little up or down to model the tap body. We'll get something like this:

And done...

Well, we're basically done modelling, it wasn't hard, was it ? For finishing things up I added a wall with appropiate textures and reflex to simulate the metallic material. One more thing, the little faces of our model will still be visible when rendering the image so be sure to SetSmooth the mesh BEFORE rendering !

This modelling method is extremely useful to quickly modelling ears and other organic solids. Just trace the

solid contours and extrude them normally to the contour's plane.

That's all for now, take care and happy blending !