**Some words about patch meshes, bevels...**

* To make a bevel, an endcap, a square endcap or square bevel, you must first create a new brush: You can't create such a piece from nothing, but instead you must turn something into it. You probably know this from making cylinders, where it is exactly the same.
* Then, you will find out, that all these "objects" are nothing special, they all can be made out of a *simple patch mesh*:
* A *bevel* is just a (already bent) *simple patch mesh* of patch density\* 3x3.
* An *endcap* is the same as a *simple patch mesh* with density\* width:5 and height:3.
* The Patch density is how many vertices this mesh will have: If you had choosen a patch density of width/5 and height/3, the resulting patch mesh would have 5 vertices horizontaly and 3 vertices verticaly, always seen in the 2D-view where u did *move/scale/select* the brush the last time. When creating a patch mesh, it might be good to remember which dimension is height and which is width, so try to not forget.
* With a patch mesh selected, u can - by pressing **'v**' - enter its vertices editing mode where u can move its vertices just where u want: make a flat simple patch mesh out of an endcap or bend a flat patch mesh into a bevel or do whatever you like with it.
* If you need more vertices to your patch mesh, you can add/insert additional vertices, where *add (2) columns* would cause more vertices and *add (2) rows* would cause more vertices verticaly. Did you remember your mesh's dimensions?!
* You will be able to add a *cap* (actually 2 caps, a top- and a bottom-cap) to a selected simple patch mesh, too. It/they will be applied to the top and the bottom side (remember 'height') of your patch mesh. If it's just covering half of your endcap, why not select the cap, *add (2) rows* and adjust it to your needs?!
* You can select the whole group of patch mesh + top face + bottom face by selecting one piece and press **Ctrl+e**, like you do with a func\_group.
* If you end up in a completely distorted something (:eek:), try *Curve/Matrix/Re-Disperse*: The vertices in the choosen direction will be set into a straight line. Still remember where height and width is? Better copy your mesh before you do something irreversible...
* Quite often, the vertices lay off the grid. No problem: You can snap the vertices to the grid by **Ctrl+g**. Then, you can drag them on the grid to where you want them to be.
* You want to add a cap and find that u have built your patch mesh the wrong way, i.e. the cap is applied to the wrong edges? Choose *Curve/Matrix/Transpose*, and Columns (=height) will be turned into Rows (=width) and vice versa.
* Have you seen that your patch mesh has 2 different sides? One where you can see the texture (front side) and the one where just its mesh is visible (back side). Some textures are even ingame just visible from the front side, so you will probably want it the right way. Pressing **Ctrl+i** changes the patch mesh's orientation, i.e. the front side becomes the back side and vice versa.
* Finally, when u have done your little something, it might have much more faces than neccessary: Try **Shift+Left bracket** to reduce complexity and **Shift+Right bracket** to give it a smaller gridsize. Making hills or mountains with patch meshes often end up in objects of an enormous facecount. Decrease its complexity, you won't notice it ingame (just by the FPS)

Take care

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