



Topologik

For a long time I teach different 3D programs. Usually, the students also enjoy it. But when it comes to the UV processing or retopologization, ie the creation of a new surface with fewer polygons, one often no longer only looks into happy faces. For a new topology of a 3D model, I personally like to use 3ds Max or 3D Coat. Other tools that have been on the market so far had roughly the same functions in my eyes. But now Topologik came out, and that seemed to shine with very different possibilities directly in 3ds Max. So that's one of the reasons for me to test this new tool.

by Mike Kuhn

After the installation you first have to expose the user interface. This is possible, as usual with 3ds Max, via the menu **Customize>Customize User Interface**. There you will find the Topologik-Icon and the **TopoLogik_PieMenu** in the category **KinematicLab**. While the icon certainly finds a good place in the toolbar, the Pie menu (I would feel weird to translate that as cake menu now) is probably the most effective way to assign a keyboard shortcut.

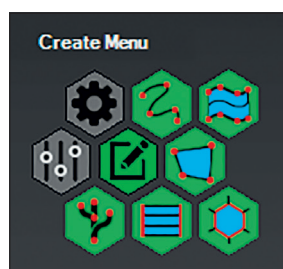
Clicking on the icon opens a small window in which I can define the high-resolution model as well as the Retopo Mesh. The object on which the new topology is to be created is automatically frozen as well. On the one hand, that's handy, but now the 3ds Max tool **Orbit about Point of Interest** no longer recognizes the surface. Thus, navigation with this mode is a little more difficult. But that's up to 3ds Max itself. But as soon as I started creating new surfaces, I can use them to navigate with this method. If you do not define a retopo mesh in this step, it will be created the first time you use one of the topology builders.

In this window, I can also set the opacity of the two geometries and the distance that the retopology should have to the high-resolution surface. We will enter the **Live Project** later. I can especially recommend the tool button on the bottom right with the inscription **S** to beginners. This button opens another transparent window containing the additional shortcuts for each tool from the topology collection.

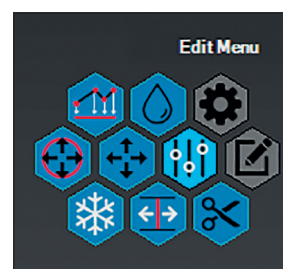
Just to avoid to open the Pie menu again and again, it is worth having a keyboard shortcut for it. The Pie menu actually consists of three areas. In the upper area are the two buttons „Undo“ and „Restore“. In the lower left area you can find all the edit tools we will deal with later. On the right

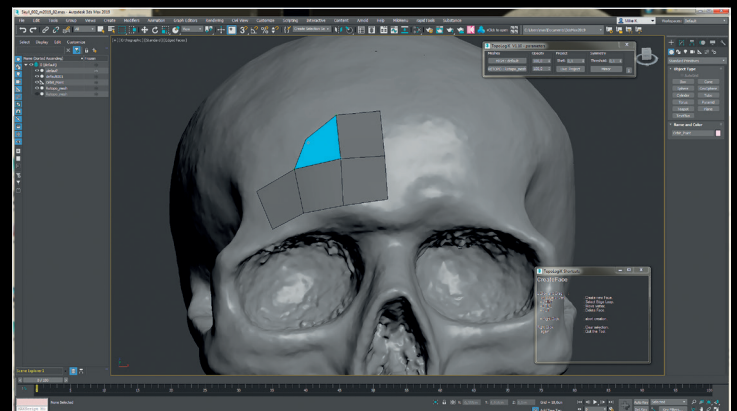
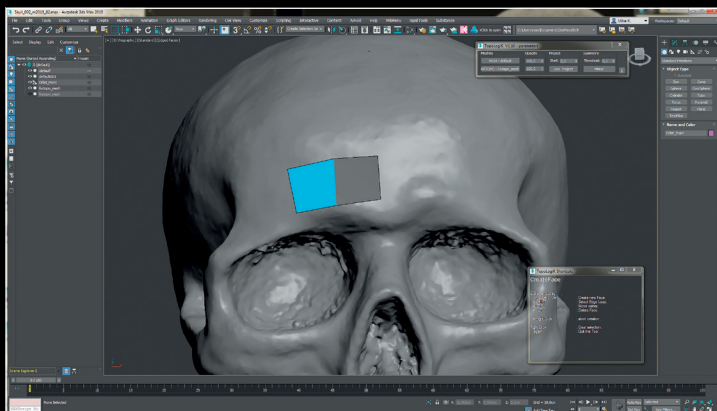
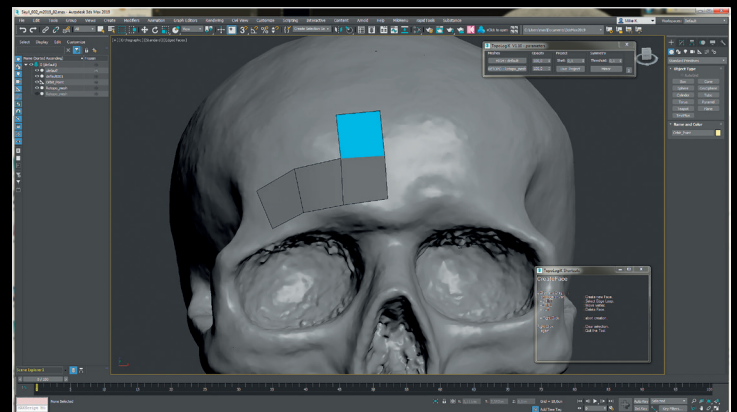
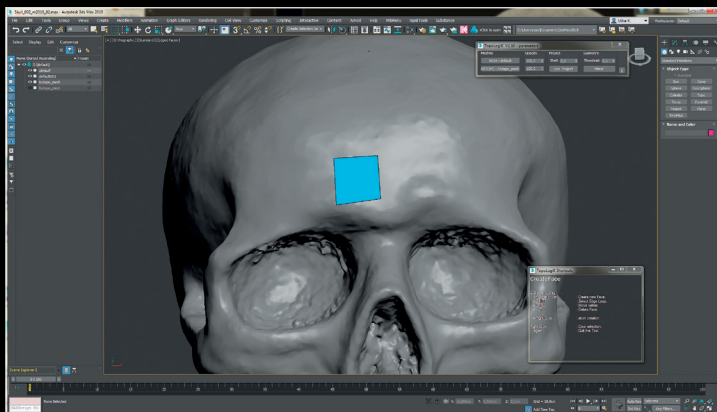
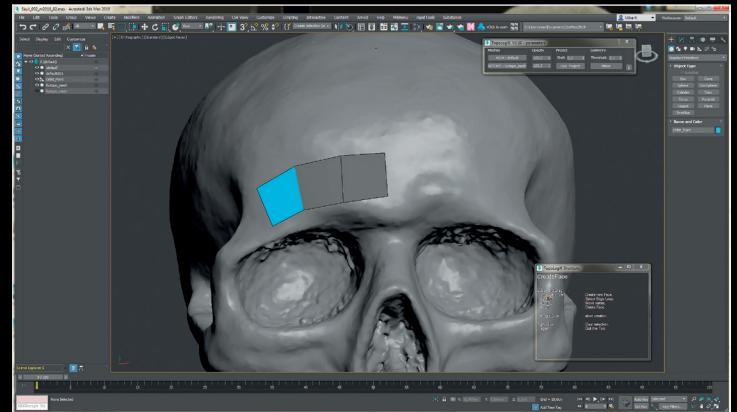
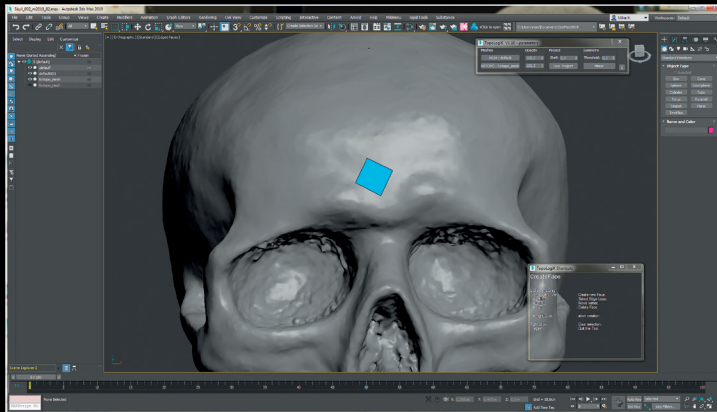
side are the different tools to create geometries. With the standard 3ds Max retopo tools, the **Extend** tool has always been one of my favorite tools. The Topologik **Face Tool** actually does the same thing, but I think it's much more effective. While I use different shortcuts for different functions in the **Extend** tool, I can also perform these functions with the **Face tool**. However, I do not need any special keyboard shortcuts here. The specific functions are called, depending on where I start my action. When I start on a free surface, I create a polygon at a vertex with the first click and define the size and orientation of the polygon by setting the second diagonally opposite vertex. If I begin my movement over the edge of an existing

On the right side of the menu are the tools for creating surfaces.



On the left side of the menu are all the tools to manipulate the surfaces.





polygons, I will create a new surface by extruding the edge. If I start my action over a vertex, the polygon is created from the two edges at the vertex, and I finish the creation by setting the opposite vertex.

In the 3ds Max Extend tool I can use Ctrl + Alt to create a polygon between two edges. With the Face Tool, I simply extrude an edge in the usual way, and then it automatically adjusts to all other edges of the mesh, while I move it. So I'm not just tied to a simple bridge functionality. I can connect a lot of polygons in any individual direction and distance. The same functionality I have when creating a polygon from a vertex. The vertex drawn hangs on every vertex that is in close proximity. So I am not bound to only four-sided polygons, but can also quickly create triangles. Very practical is also the possibility

The Face Tool allows the creation of single polygons as well as a chaining of polygons up to polygon surfaces.

to select several contiguous edges with Shift and then to extrude all at once. The Ctrl key can also be used to move individual vertices.

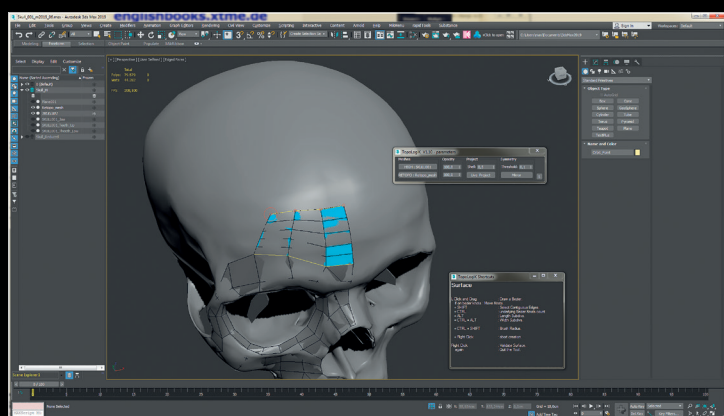
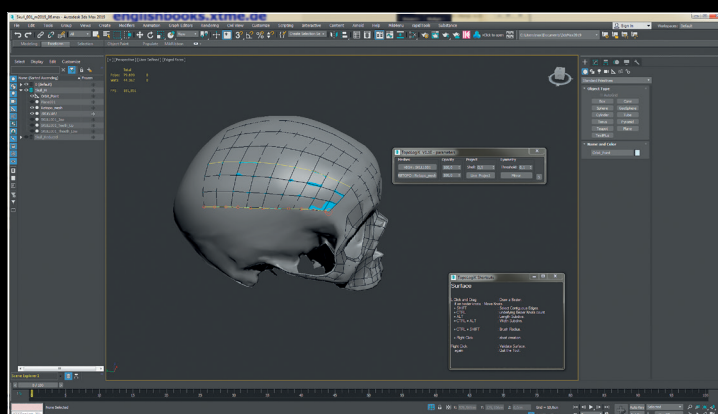
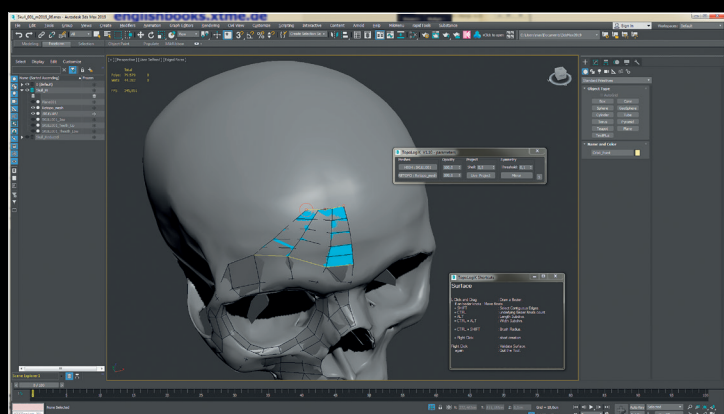
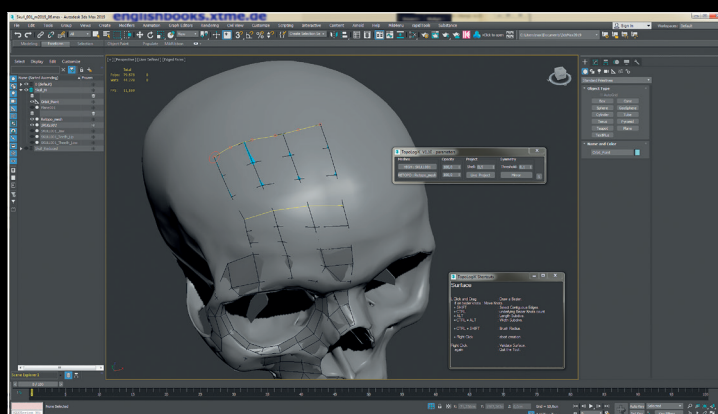
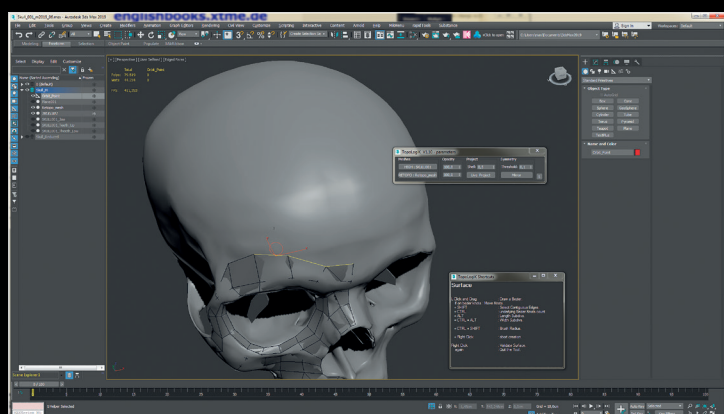
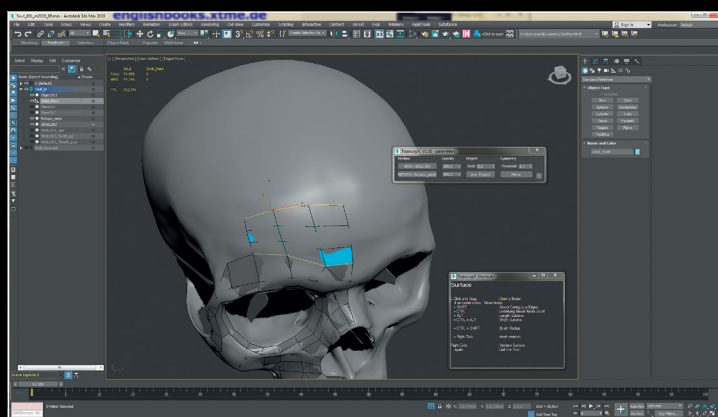
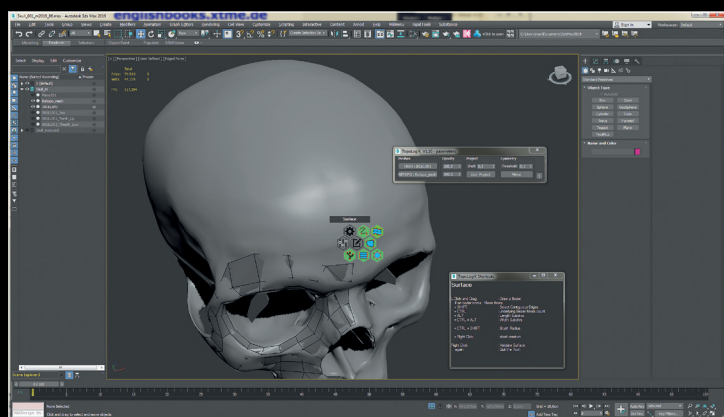
Surface

With the Surface Tool a line can be painted on the high-resolution mesh and at some distance another line. The area in between is then filled with several polygons. Through various keyboard shortcuts I can change the number of points of the painted lines and the number of rows and columns of the po-

lygon area in this tool. As long as the tool is still active, the shape of the surface can be adjusted by moving the individual points of the lines. Here too, you can use Shift to select several contiguous edges on which the new polygon mesh is created.

Strips

Important polygon strips, which should have a certain course, can be laid cleanly on the surface with the Stripe tool. Here you draw a Bezier line on the high-poly mesh. Similar to the Surface tool, it creates a strip of polygons that can be brought into the desired state by the position and number of spline points



Bridge

The Bridge Tool provides the ability to insert polygons between two edge loop selections. What sounds very simple at first glance, but shines through the free, interactive selection of the edges. As we already know from Stripe and the Surface Tool, the number of segments can also be set here. The Cap Tool can, as the name implies, close holes. As soon as I approach a closed edge loop in this tool, it lights up and I can temporarily close it. While the tool is still active, I can rotate the inner new polygons to define the desired edge flow. By being able to adjust the number of segments here too, and thanks to the option of turning, you can actually find the right filling for every gap. The opening does not have to be an even number of edges.

Large areas can be quickly covered with the Surface Tool.

and the number of polygons. On request, the respective ends of the created strip can be tapered. Another nice feature of this tool is the ability to re-select already completed

polygon strips and generate a new auxiliary spline that can reshape this area.

Branch

With the Branch Tool, fingers, horns and other cylindrical areas can be covered very quickly. This tool automatically detects cylindrical shapes, and you can click and drag to wrap a section of a polygon mesh. As we already know from many of the other tools, the number of segments in the horizontal and vertical ranges can be changed here as long as the tool is active. Also in the phase still the beginning and the end of the hose can be moved and twisted. With the Shift key, the newly drawn branch joins the end of the other.

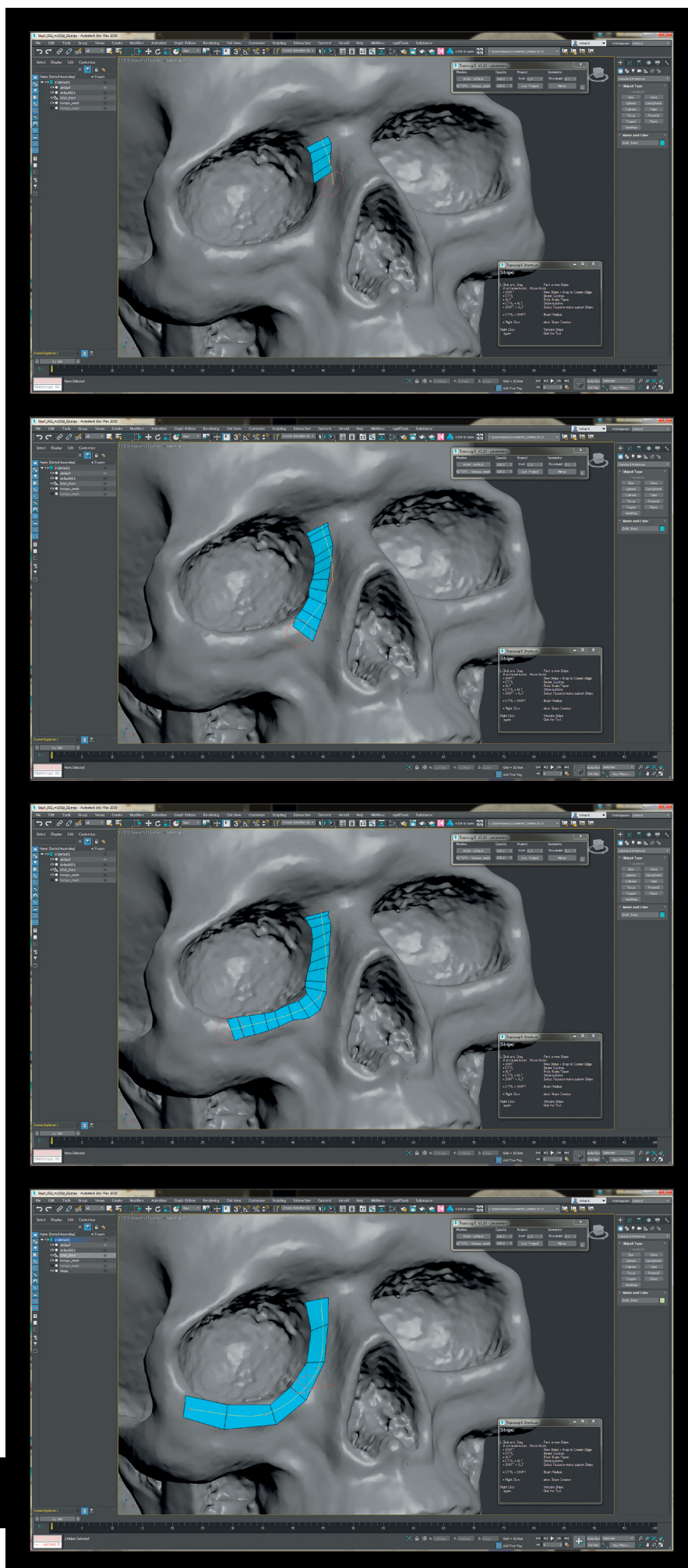
In the left side of the pie menu, we find the editing tools that were initially populated with Relax, Move, Freeze, Split and Cut. While writing this article further tools were added, such as the Move Brush and a Straighten tool.

With the Relax tool, areas can be relaxed by making the distances of the processed vertices relative to each other. It is pleasing that unlike the corresponding tool in Graphite Modeling Tools, the edges of the topology are not affected.

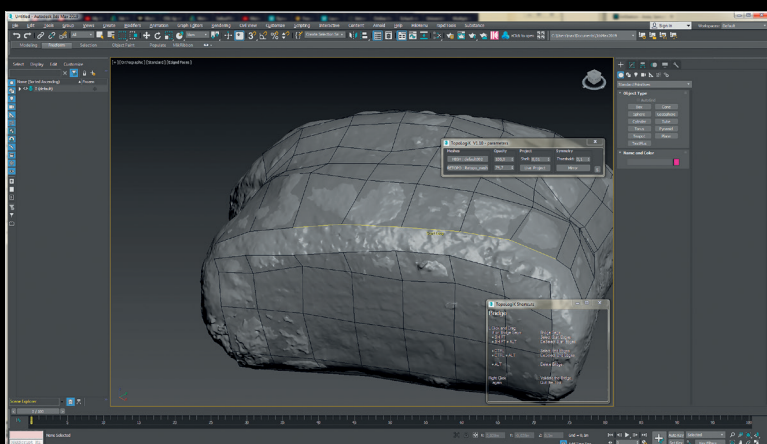
The Move Tool allows you to move individual vertices, edges or polygons or to select multiple vertices, edges or faces and then move them together. Earlier, I mentioned the Live Project button in the topology parameter window: If this is enabled, you can edit the retopology outside the topology tools as an editable mesh or poly object, and the vertices do their best to slide along the surface of the high-resolution model.

The Move Brush in turn works a bit like a soft selection and shifts the vertices relative to their distance towards the brush center. With the Shift key it changes to a Relax Brush. The Freeze menu offers three tools that allow me to freeze or un-freeze surfaces, areas or even selections. This can be helpful in conjunction with the Move Tool or the Move Brush. One would, for example, freeze the area around the corner of the mouth and then work on the surrounding area without accidentally deforming the frozen areas.

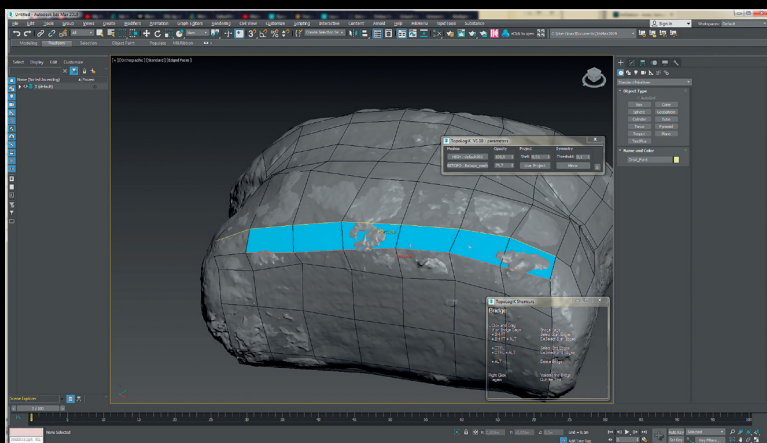
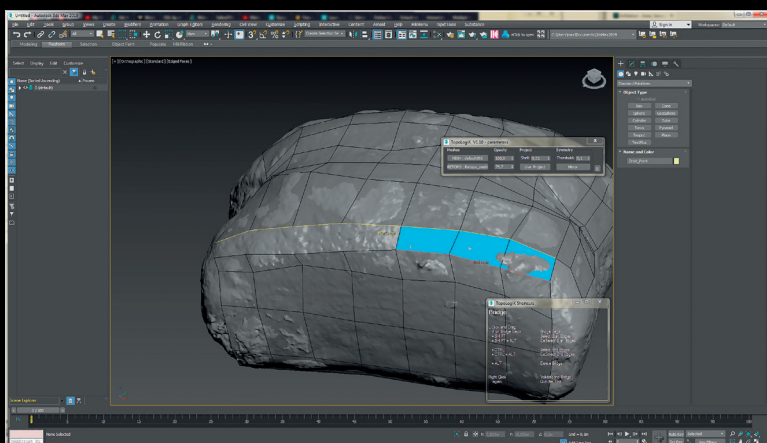
With the normal cut tool in 3ds Max, it can happen that you do not create a new cut directly at the desired vertex and are a bit off the mark. You can fix that by turning on the Vertex Snap. But then you have some problems placing the cuts on edges. With the cut tool of Topologik one defines when pulling the cut with the Ctrl and the



With the Stripes Tool, the most important loops can be placed in the topology.



The Brige Tool interactively connects two selected edge loops.



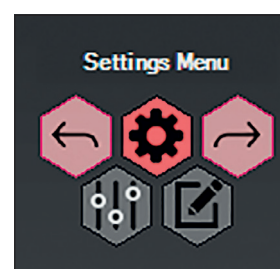
Conclusion

Compared to the existing topology tools in 3ds Max, the Pie menu makes working easier and speeds up processes by shortening mouse movements. That paired with the many possibilities offered by Topologik when it comes to surface creation, I have now fallen in love with this additional tool. I use the word meanwhile, because in the beginning I needed to get used to it, often using wrong shortcuts and missing the shortcut Ctrl + Z so much. Then I also addressed the creator of the script. Unfortunately, he explained that it was very difficult to implement. Well. I can live with that. By getting used to it, I now made my piece with it. In general, buying the script has been helpful to me. This 30 euros has made up very quickly. >ei

Shift key whether one wants to cut the edges or vertices. The Split tool is used to divide entire edge rings or even just one route to be painted. In this case, the cut starts from the edge closest to the starting point of the paint movement.

While I was writing this article, another update came out. In addition to a Symmetry button in the main menu, which can be used to create the other side of the model at the same time, straightening was also added as a new tool. Working with this Straighten Tool offers a few interesting options. So I can select individual edges or loops and then draw a line from my preferred starting point in the desired direction and thus define in

which direction I would like to straighten the selection.



Topologik has its own undo and redo functions.