

GIANA SISTERS – BROKEN MORPH AND HOW TO MAKE THINGS WORK AGAIN

First of all like with everything else it's so much easier to break things than make them work like they should. In our case this was also the core feature of the visuals, the 3D morphing.

(Carriage <-> carriage).

You can read about it in the article we published earlier here.

Break it ... or better don't

Creating one object using an already defined topology can be quite a challenge, depending on how different the shapes of the objects are. When producing these kinds of objects in most of the cases we noticed that with the topology fitting for the object of the cute world, the polygon resolution was not high enough of the object of the dark world. So far so bad ...

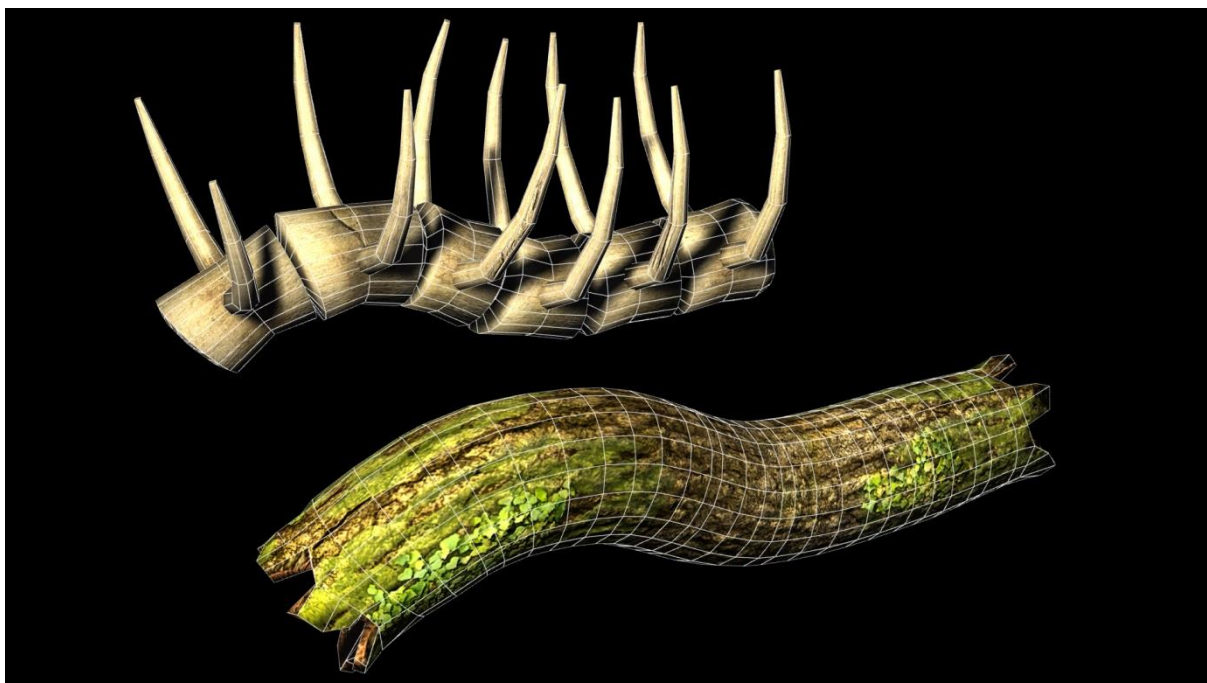


Image description: finished cute world asset

In most of the cases we just carefully added polys where they were needed, making sure that the cuts that were added, were done in exactly the same order. In most of the cases this worked out and you ended up with an object that was looking good in the cute world, could morph into the shape of the dark world object and also looked good in the dark world too. If not you could hope that you have enough undos set to revert to a working but not final state.

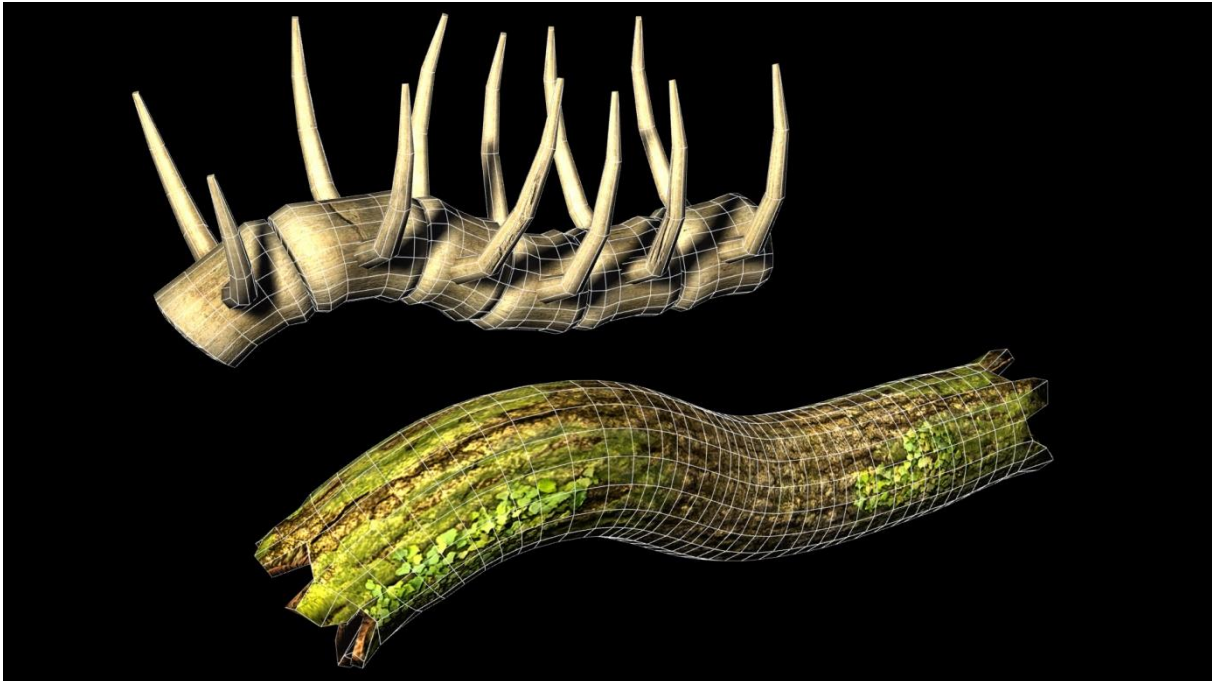


Image description: finished cute and dark world assets capable of morphing

Depending on the object we developed several solutions to make things work again.

1. Add cut by cut in both objects

Our common approach to this issue was the simplest one. You basically do the same as described above; you just switch and check more often between the objects. This way you can be sure that you have enough undos. The downside of this is that it can take some time.

(Tree log <-> spine)

Video Description: Assets created using this workflow

2. Go with the flow

Depending on the complexity of the cute world mesh another approach we had had was just to finish the dark world mesh and then adjust this mesh to match the cute world again. This again was also time consuming, although the freeform tools were quite handy. This way we could conform and relax the mesh to the original. This works fine if the shape of the object is not that complex.

(Tree trunk <-> candle)

Image description: Assets done using this workflow

If the objects were too complex then the only weapon of choice had to be basically the snap.

3. Skin Wrap

Another nice way to recreate broken morphing is to use the skin wrap modifier. Here you just need an already morphing, not necessarily final asset that you can use as the target for the not morphing but final asset. Here you have to tweak the values to get the best result so you don't have to adjust too much. Once this is done you may need to adjust some verts to get the desired result. With a good resolution of the morphing mesh the skin wrap alone is enough. The only restriction the method has, is you have to have a morphing asset, which in our case we unfortunately rarely had.



Image Description: The lods of the tree were done this way, saving us a lot of time.

4. Do it the complex way

Again the power of scripting should never be underestimated, you just have to have the idea how this could be achieved, and there is always someone who then can write the script for that. In our case we were lucky to have the idea and the knowledge in-house so the development of this tool could be kept short and on point.

Just to describe the idea in general:

Morphing doesn't work so the vertex IDs don't match as they should between the two objects. It is also most unlikely that both objects have already the final mapping for one of the world, and if so then again the UVW vertex IDs most likely won't match too. The only consistence between the two objects is basically the topology and that was basically the hook for this tool.

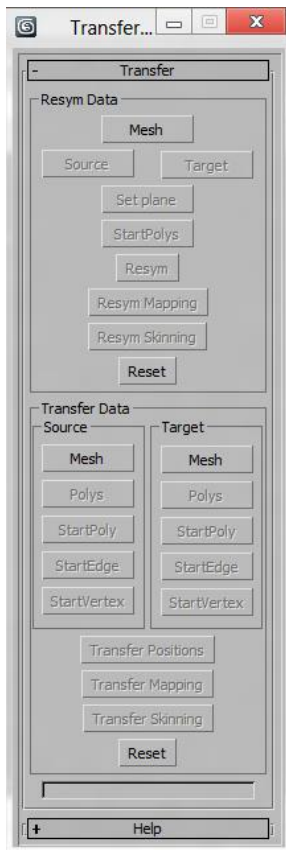


Image Description: Screenshot of the interface of the Transfer Data Tool

In the tool you have to define the source object in most of the cases it's the dark world object and the target object (a duplicate of the cute world object). Then you define the group of polys that should be transferred, this is sort of the only limitation but also the advantage as you can just recreate just part of the object. Due to the algorithm the selected polys must create an island. With that done you just define the start poly, the edge and the vertex in both of the objects and with a push of a button you will get an object that the cute world object can use as a morph target and morphs correctly.

(Bench <-> coffin)

Video description: example of the objects that were finished using the script.

Just as a side note: We designed the tool so it can not only be used to reinstate the morphing, but also you can recreate the symmetry of an object and also you can transfer the mapping from side to the other or from one object to another, given the need and a little bit of time we will extend the tool to support other data that needs to be transferred (e.g. skinning, vertex colors, etc.).

Conclusion

The decision to use a morphing this unique in our eyes did provide a visually stunning game. It did take much more time to produce the assets though, but it all comes down to the experience with the tools used, which we luckily had, giving us the possibility to choose and adapt to our needs.