

Alias PA body modelling tutorial



Introduction

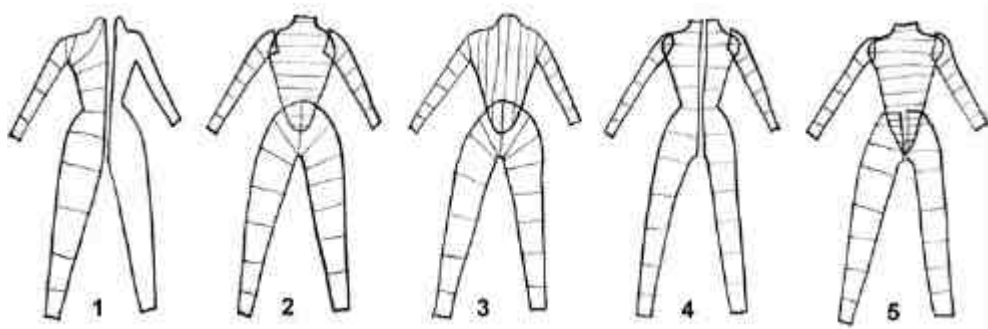
Hello again, I'm Steven Hägg-Ståhlberg and welcome to the next phase of this tutorial. For more information about me and my work check my website by clicking [here](#). This tutorial works best with Alias PowerAnimator® or Maya®, although the cross sections can be used as modelling templates in any 3d software. For more general cg advice, check out this page: [About Computer Graphics](#).

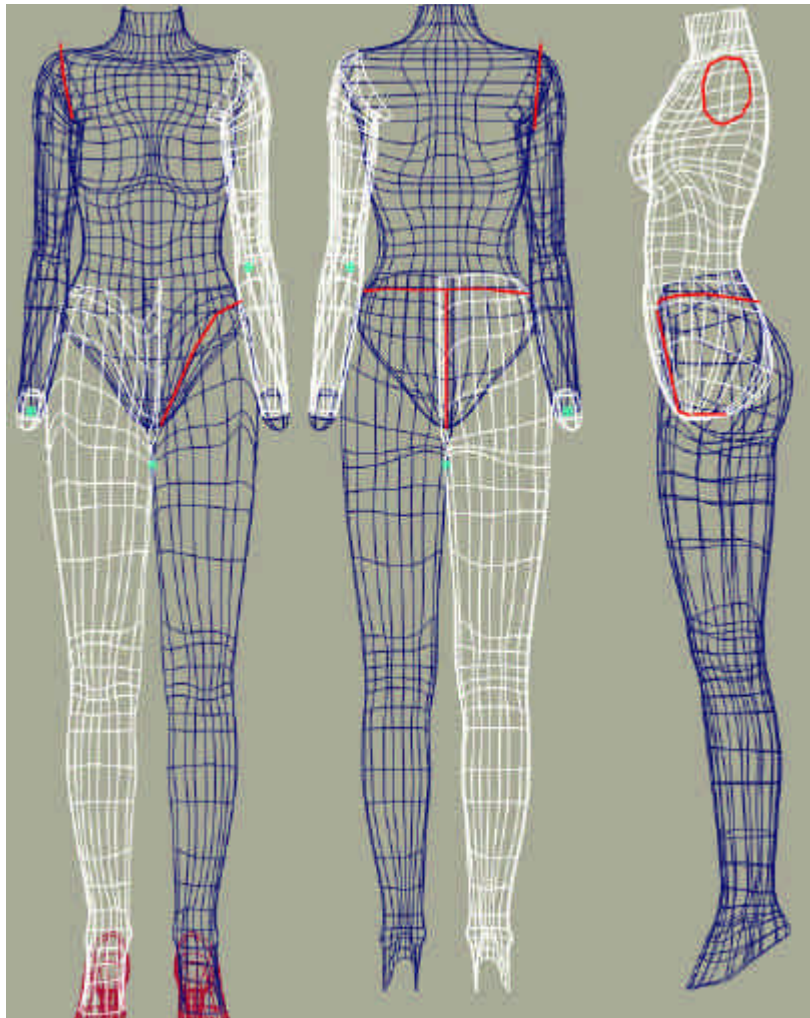
Planning

First we have to plan our approach. Will we use 2, 4, 5, or more surfaces? (I'm not counting the hands and the feet.) Of course with Hierarchical B-splines (h-splines), or polygons, a single surface would be the way to go, but this tutorial only covers how to do it with old-fashioned splines. Still, the profile curves and cross-sections will probably be useful to anybody modelling women no matter what the software.

So which configuration to choose?

Here are some different layouts. (It's impossible to model a body in old style splines as one surface.) It's not a good idea to have a seam along the center of the torso, at least not on a smooth-skinned woman, except perhaps in some special cases where clothing etc will cover the seam - so that eliminates numbers 1 and 4. Numbers 2 and especially 3 seem promising, it would be great to be able to build the body using only 2 surfaces - but note how the isoparms bunch up in some places, and kind of 'go against the grain' of the model. It's up to you - I settled on number 5, the 5 piece body.



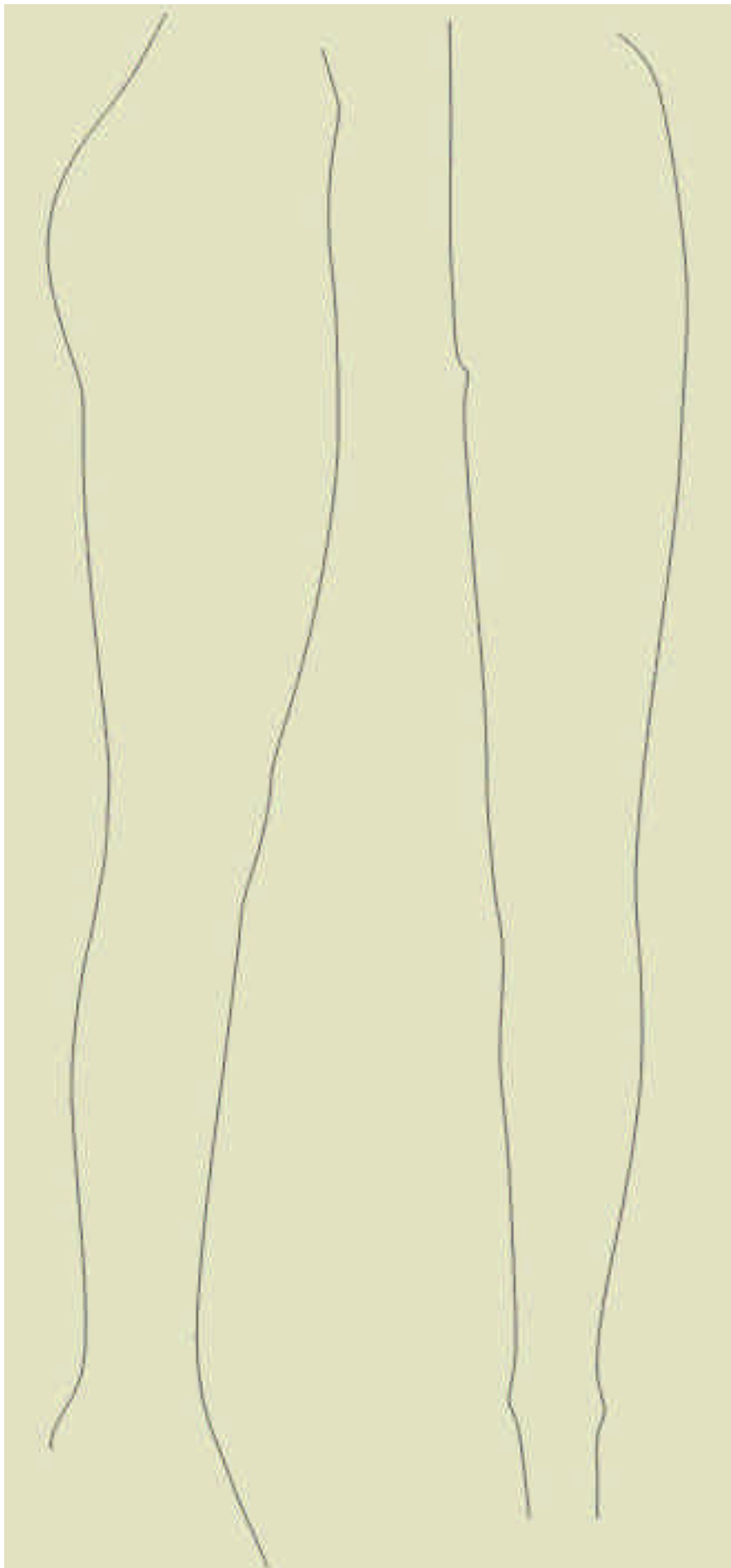


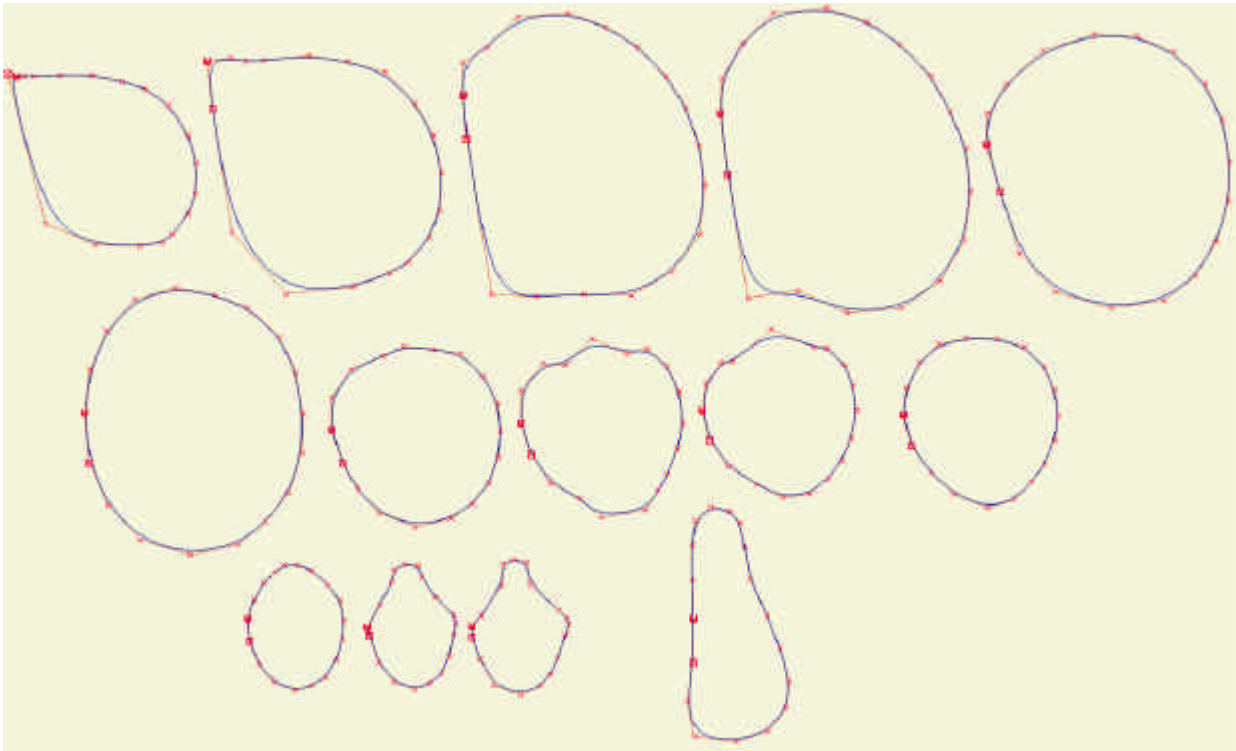
So with the 5-piece body we get 4 seams - exactly where to place them? Take a look at the image above, This screenshot shows where I put mine (red lines). The arms are easy, along the top of the deltoid muscle seems to be a natural choice. The leg seams I put close to the bikini line in front, but a bit lower so it doesn't actually interfere with the bikini in animation. At the back the most natural place seems to be in the small of the back. The legs are overlapping each other a bit at the back.

A note on the 'look' of the body: there are of course many different types of bodies considered beautiful, you might choose to edit your version of this tutorial to make it look Asian, African, Latin, Scandinavian, fatter, skinnier, whatever. The look I've chosen here is an undetermined, slightly averaged, slightly idealised somatype, which will make it easier later to develop many different versions from this original.

Modelling the legs

Copy these curves to use as templates into your front and right windows and trace them exactly, or draw your own versions of them freehand



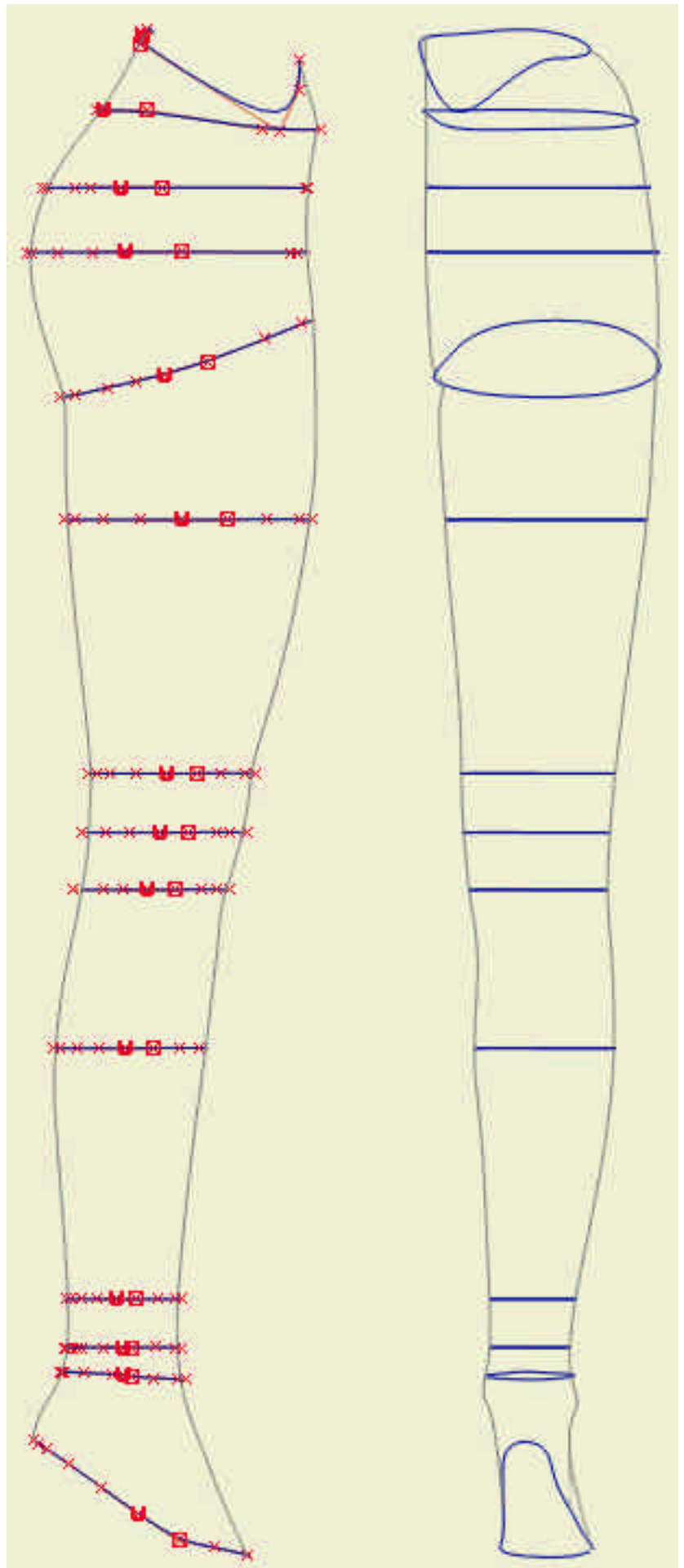


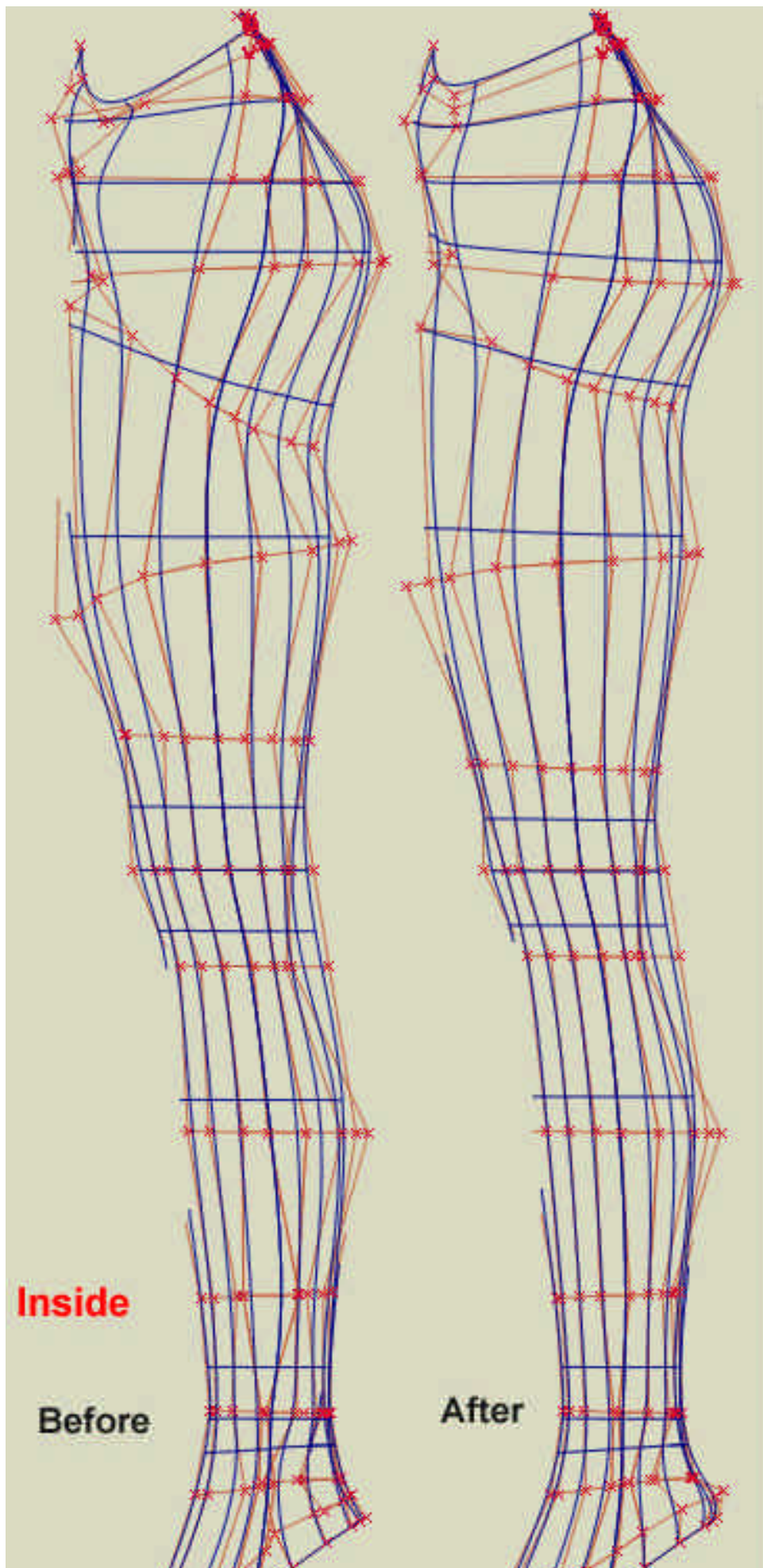
Draw these curves in the top view. The best way is to draw one of them, the most complex one preferably, let's say the second or third one, and then copy and edit them into shape one by one until you have created all the other curves.

Notes

(This space has been intentionally left blank.)

Place them in a configuration like this, and 'skin' them together using 'Chord Knot Spacing' ('loft' in Maya). Note the tighter spacing around the joints.



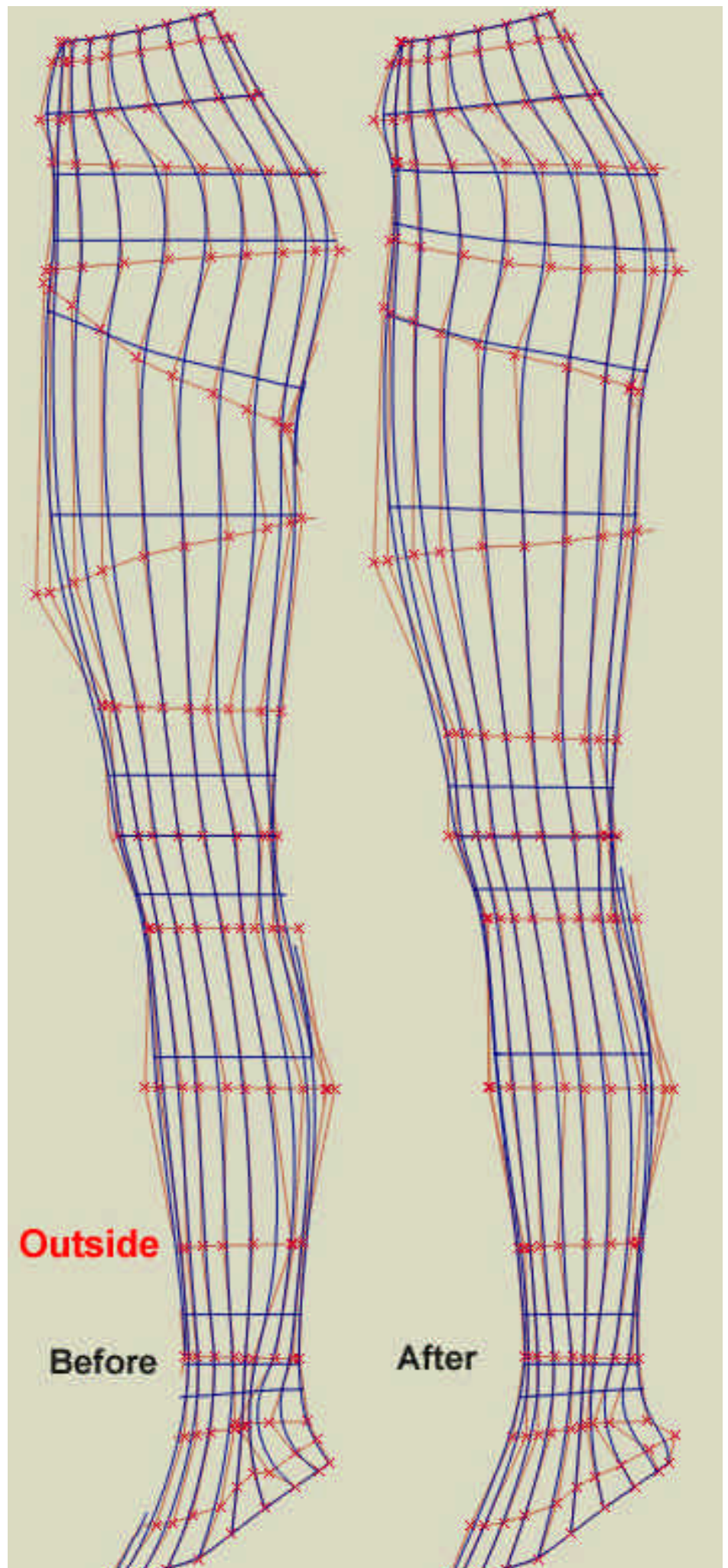


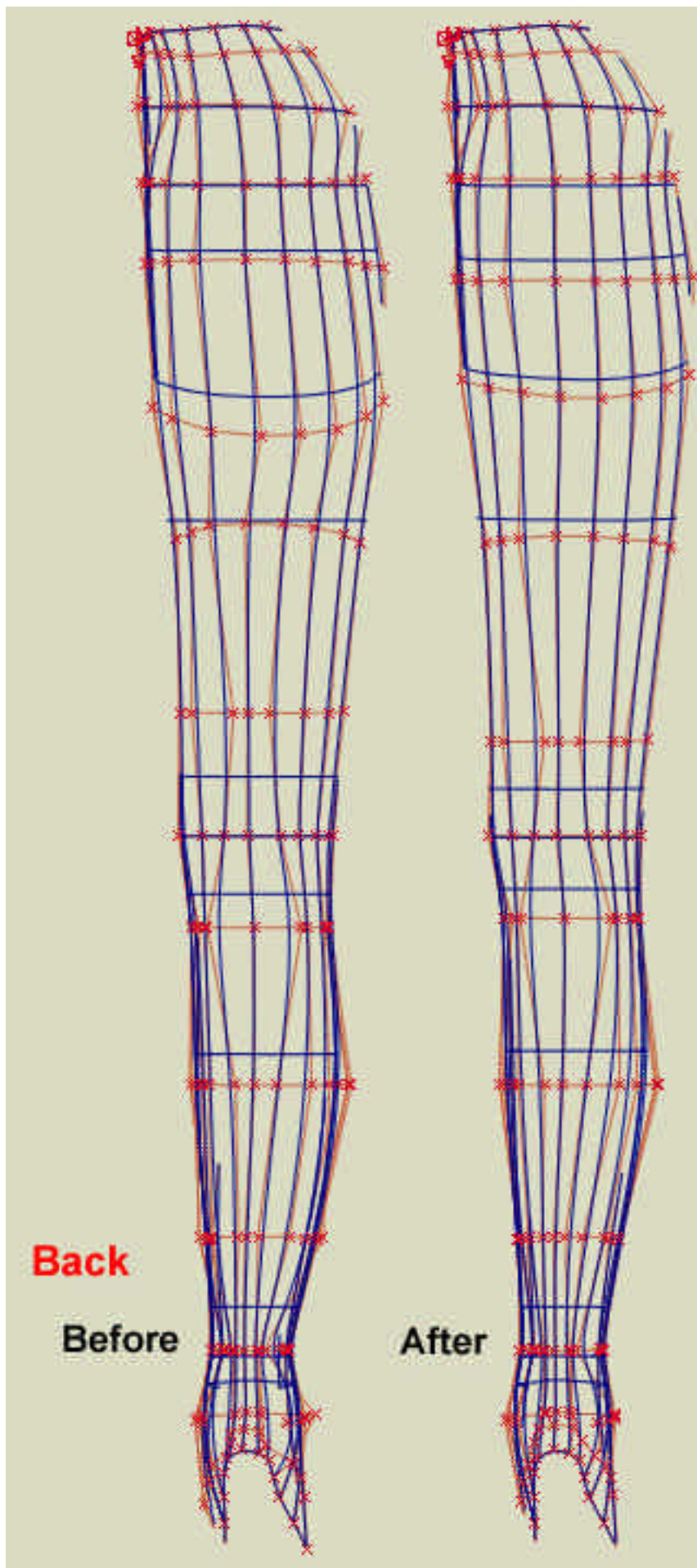
Now edit the rings of cv's using the 'Move CV Normal' (in Maya just use the 'move' tool) so they look like the 'After' versions.

*This screenshot at left shows the **INSIDE** part of the leg and how it should look before and after editing.*

Again, edit the rings of cv's using the 'Move CV Normal' (in Maya just use the 'move' tool) so they look like the 'After' versions.

This screenshot at left shows the **OUTSIDE** part of the leg and how it should look before and after editing.



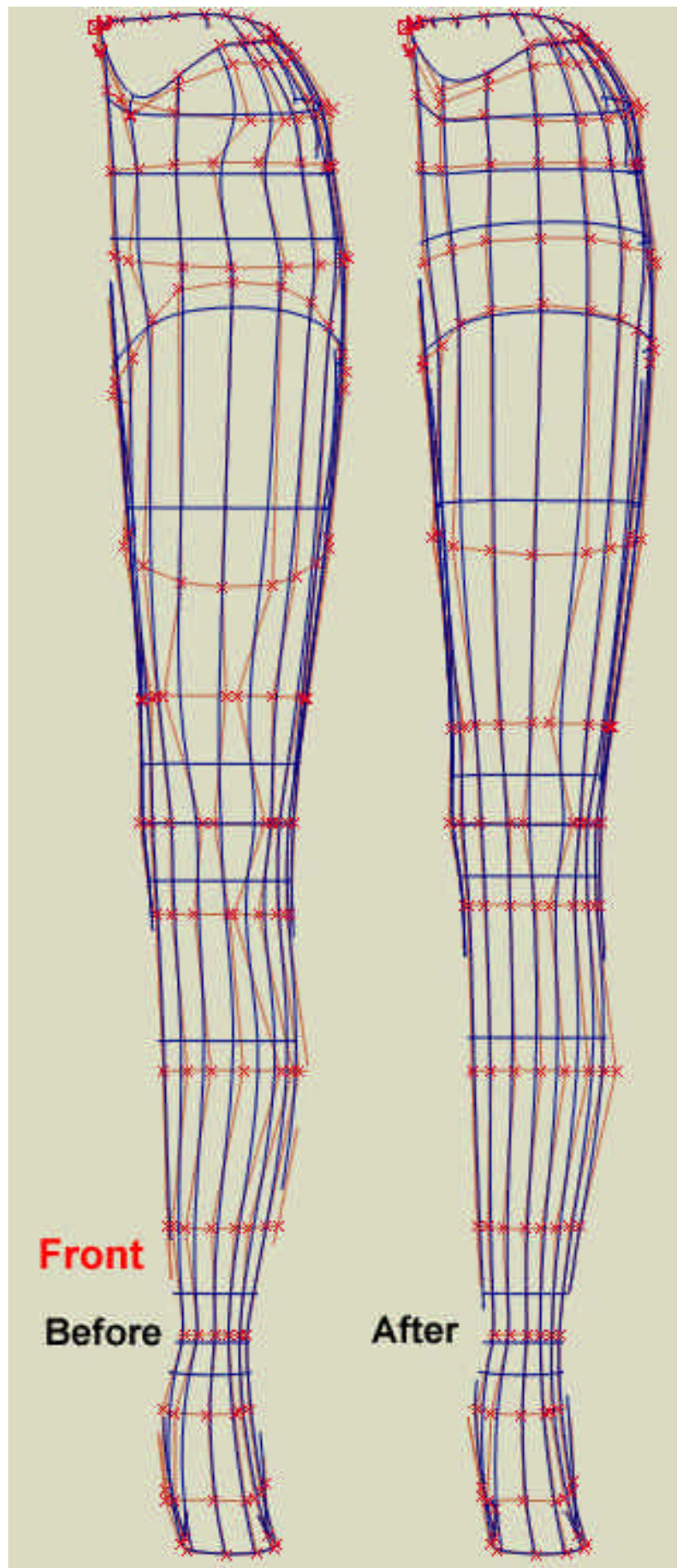


Repeat the procedure yet again, edit the rings of cv's using the 'Move CV Normal' (in Maya just use the 'move' tool) so they look like the 'After' versions.

This screenshot at left shows the BACK SIDE part of the leg and how it should look before and after editing.

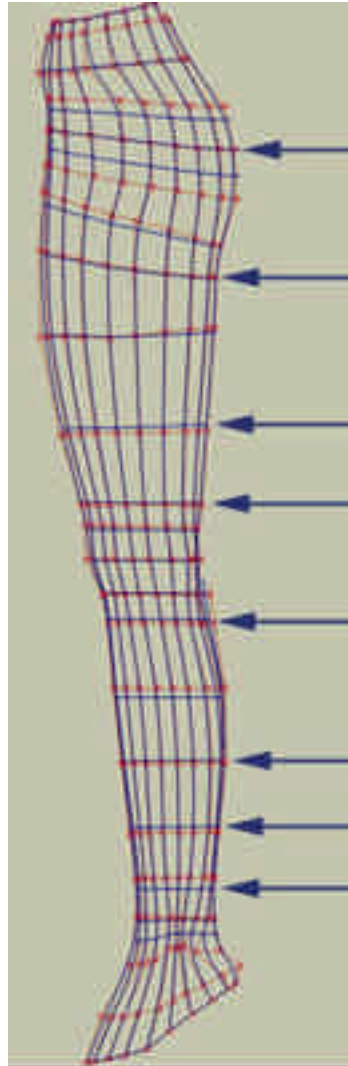
Finally, edit the rings of cv's using the 'Move CV Normal' (in Maya just use the 'move' tool) so they look like the 'After' versions.

This screenshot at left shows the FRONT SIDE part of the leg and how it should look before and after editing.

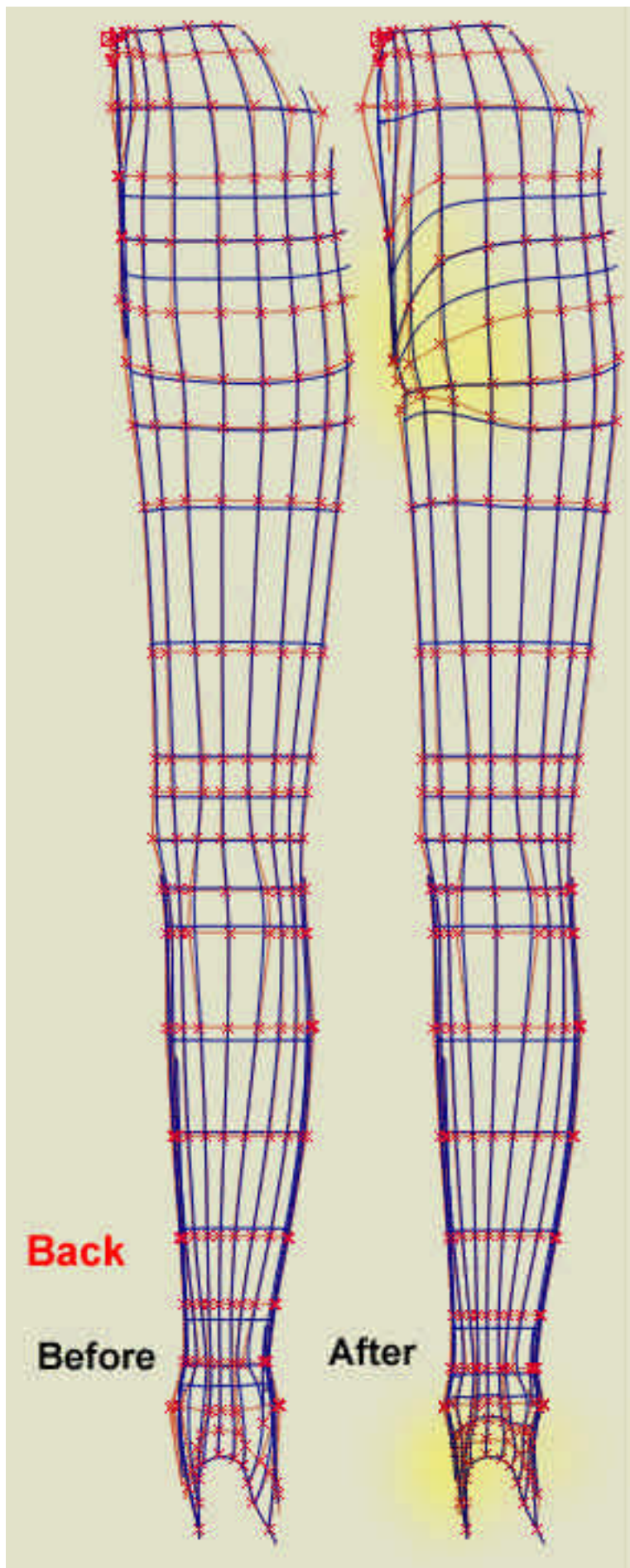


Next we add isoparms at the arrows. The reason for this is we need more definition around the hip and knee joints for the extreme bending these joints can perform (also add one at the ankle). Don't add much more than this, it will make it harder to keep the surface smooth in future editing.

Note that the arrows are pointing to the blue isoparms, which get added when you use the 'Insert' tool, move the green cursor and press ok. The cv's on your model won't line up with this image at first, you have to use 'Move CV Normal' again to move them into these positions.



Keep editing until the legs begin to look like the images on the following pages. Particularly note the areas highlighted in yellow. At this stage I also found that I needed more definition on the lower foot, so I inserted another isoparm there.



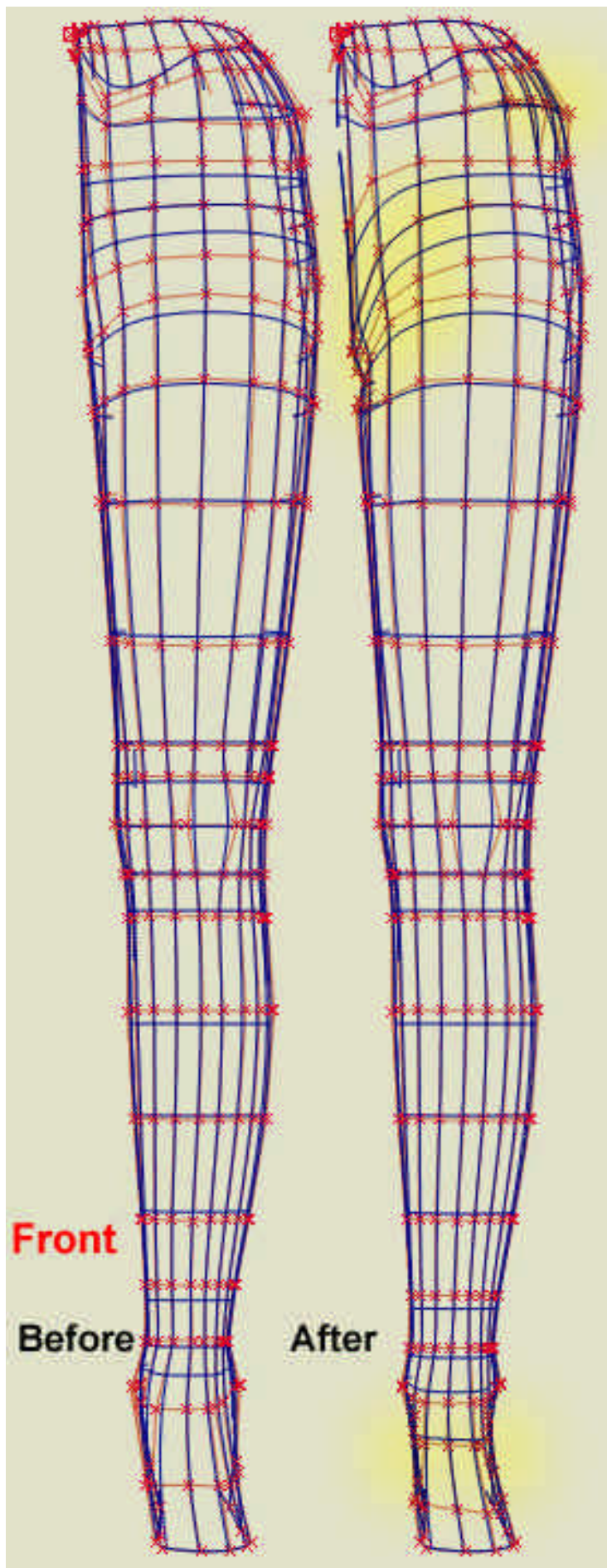
Again, edit the rings of cv's using the 'Move CV Normal' (in Maya just use the 'move' tool) so they look like the 'After' versions.

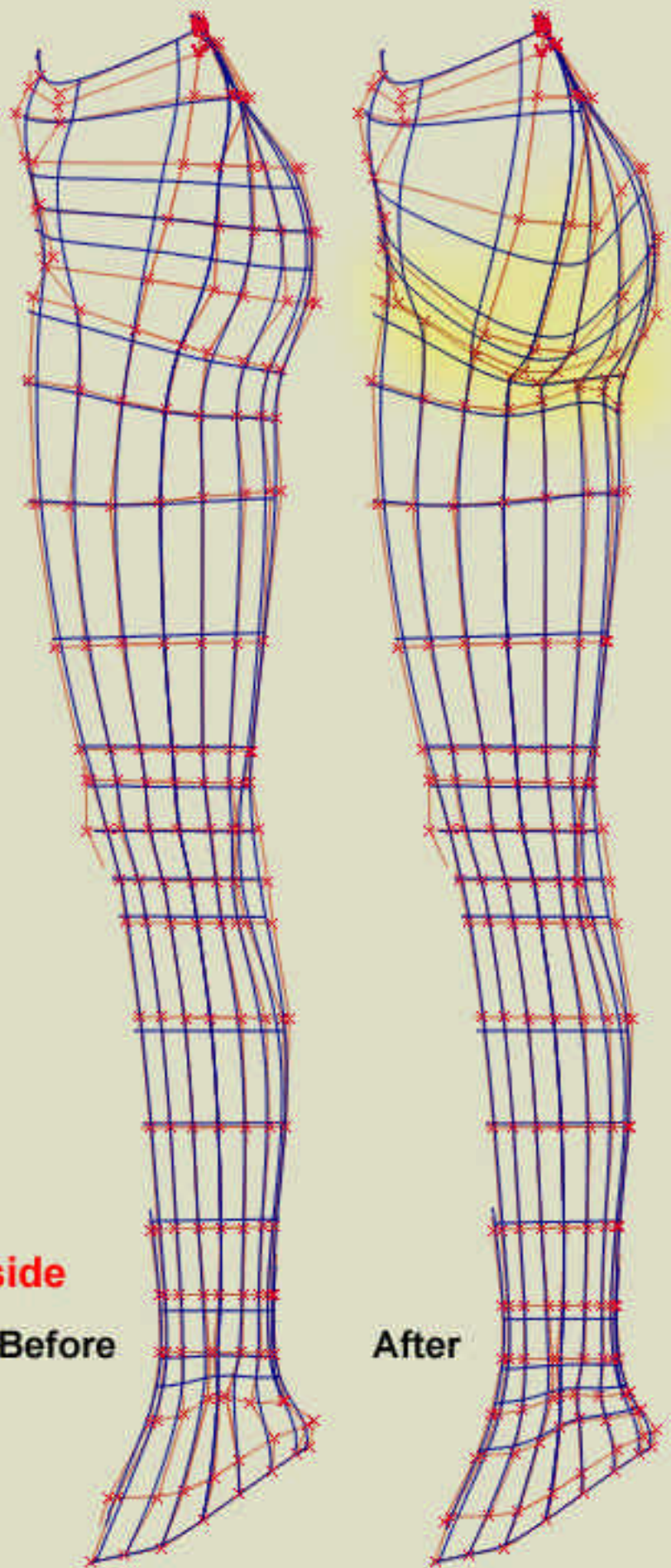
This screenshot at left shows the **BACK SIDE** of the leg and how it should look before and after editing.

Observe how the isoparms have been edited, especially in the area of the buttock.

*This screenshot at left shows the **FRONT SIDE** of the leg and how it should look before and after editing.*

Observe how the isoparms have been edited, especially in the area of the crotch & bikini area.

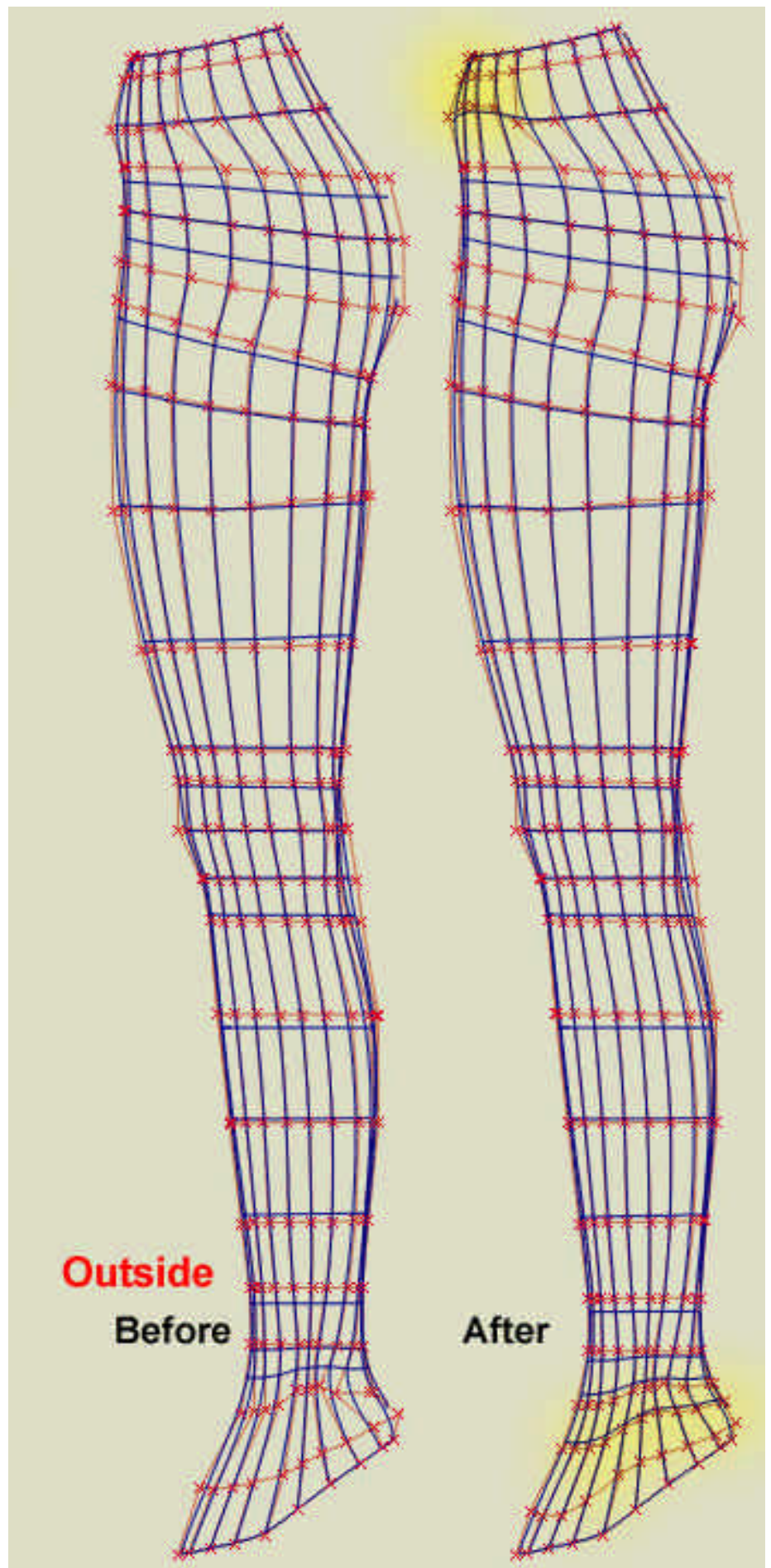




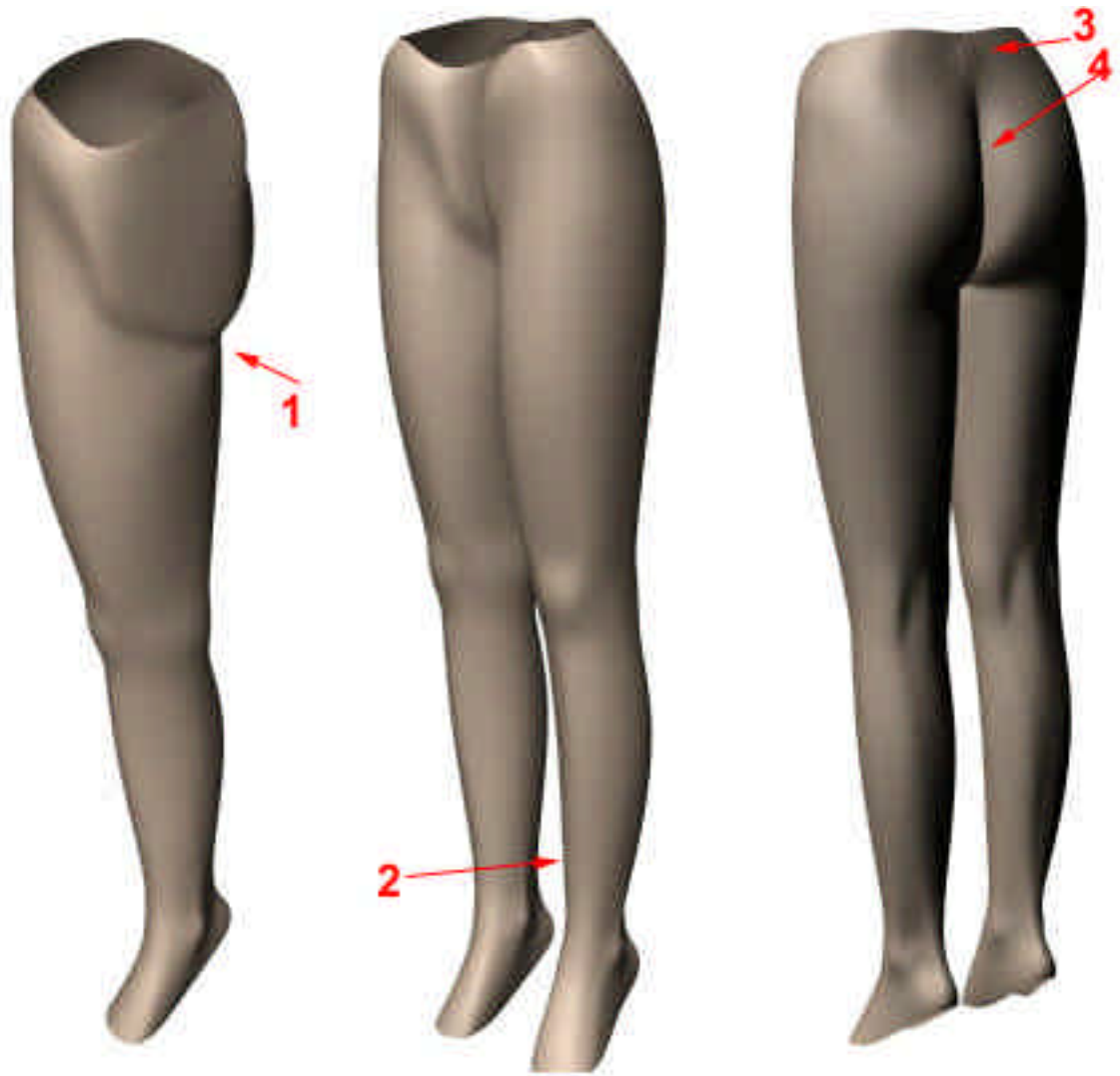
*This screenshot at left shows the **INSIDE** of the leg and how it should look before and after editing.*

Again, observe how the isoparms have been edited, especially in the area of the crotch & bikini area.

*Lastly, this screenshot at left shows the **OUTSIDE** of the leg and how it should look before and after editing.*



Mirror copy the leg as an instance and place it so the thighs just touch each other at the groin, in the front view. Here are some renderings of what the leg should look like now. I'm using a Blinn shader with a low wide highlight to see the shape as well as possible.

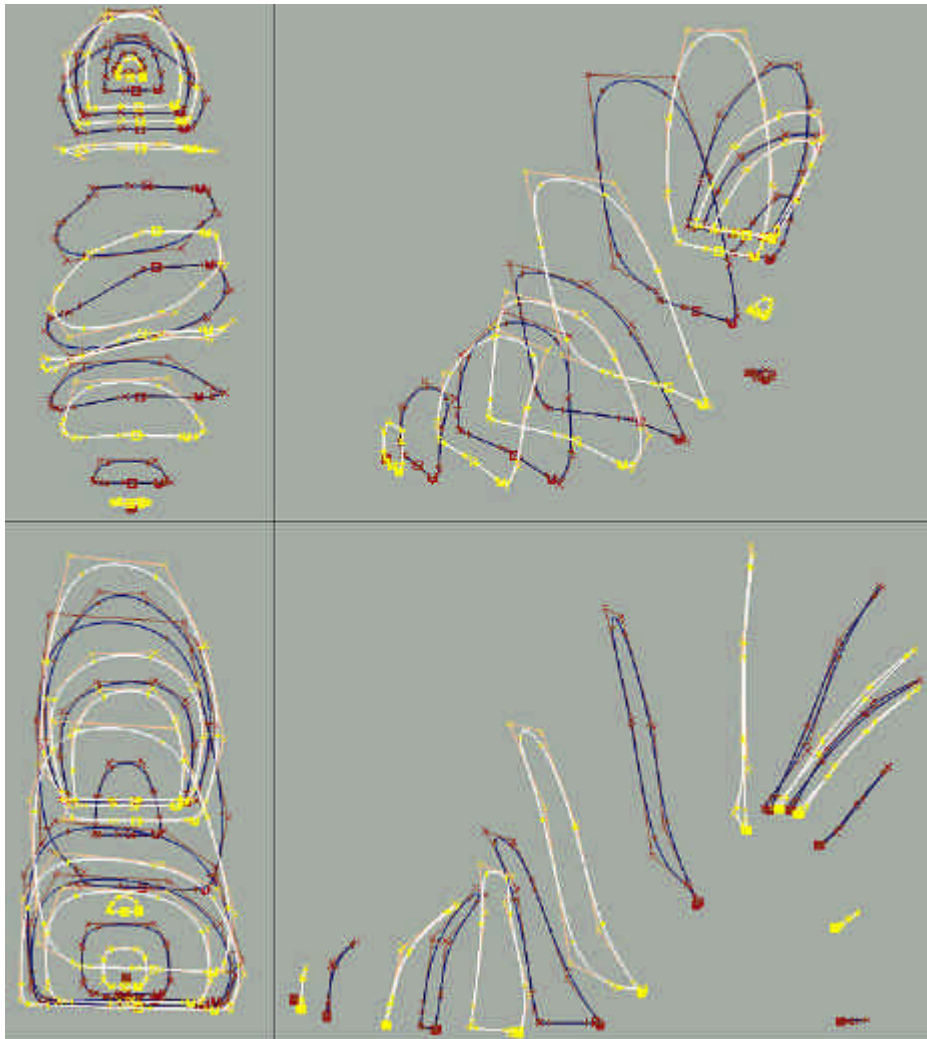


Arrow number 1 points to an area where I think some slight smoothing might be good. Number 2: the shin seems too straight there, and could be pushed in a bit to become more concave. 3: that bump should be smoothed out, and 4: that part of the buttock seems too straight and should be bulged out a bit more. There may be other things wrong with your leg that you'll only notice when you do test renderings from different angles. It's best to compare each rendering to a real woman's legs, but first make sure that the rendering is close to the same angle, lighting and focal length, and that the reference you're using is not physically unusual, or if it is that you disregard this and only select features you know are shared with other beautiful women. Otherwise it's easy to start running in circles trying to first emulate one type of body, then another with some opposing shapes - conflicting data here will make a difficult job so much harder. (The best is of course to use the same woman throughout the project, but that's easier said than done.)

The shoes

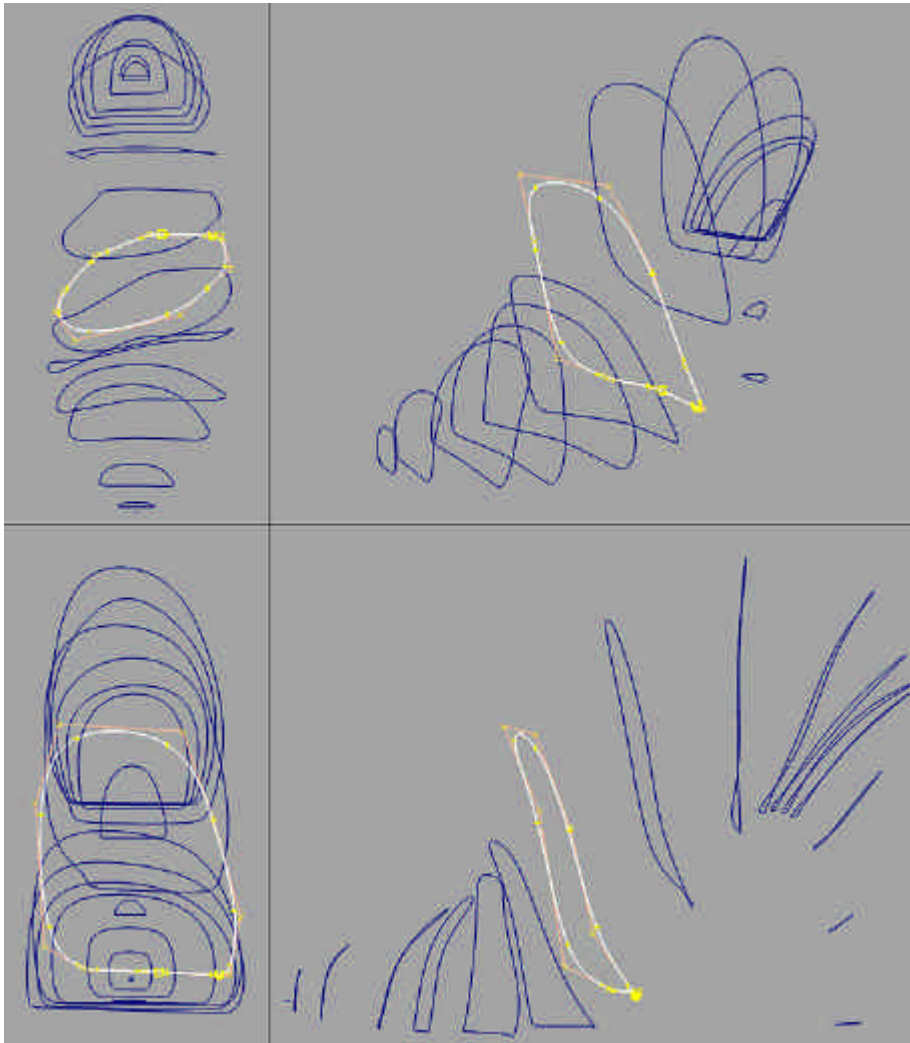
Now lets do the shoes. I've chosen to start with a pair of simple pumps; apart from being a very beautiful shoe they are easy to make from a single not too complex surface.

Why shoes and not a full foot, with toes? Well, shoes are of course much easier to do, lighter to animate and more generally useful visually, and usually sexier too. That's why the foot of my model doesn't extend further down, it only needs to overlap the shoe by a little, more would risk interpenetration problems in animating.

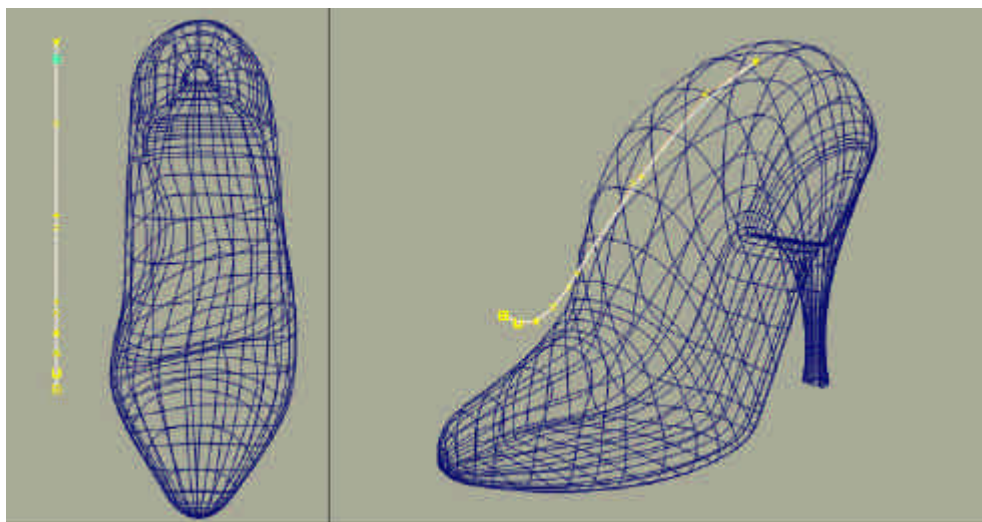


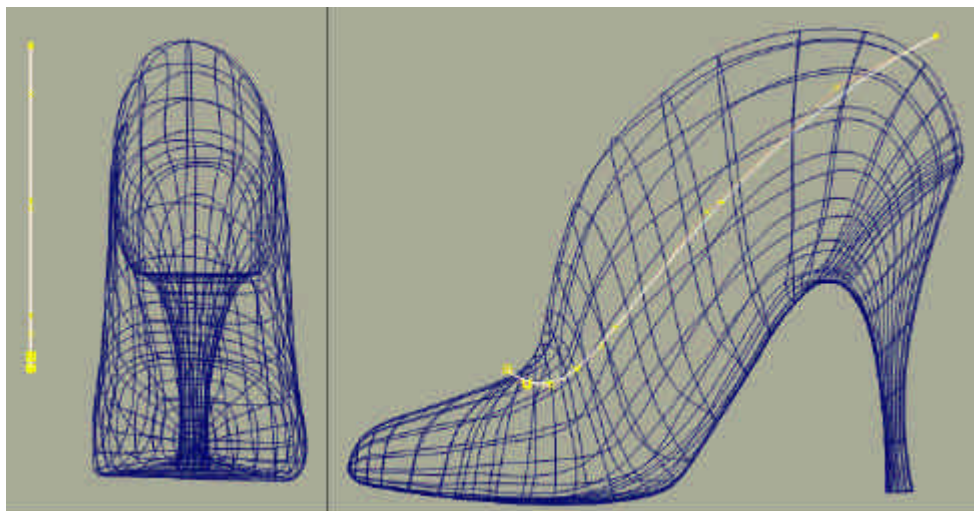
Draw these curves. I've highlighted every second curve here to make them easier to tell apart - at first glance it's going to look like a confusing mess, but after a while you'll be able to trace each curve. It's good practice. If you have problems with this shape, the best thing to do is to get hold of a shoe like this, and put it next to your computer. You can even scan it in a 2d flatbed scanner, that's what I did.

Here's another view of the shoe, this time without the cv's visible. Perhaps this might be clearer and easier to understand.



Next loft the curves together, and it should look something like this. (This surface has had its isoparm display increased to better see it.) Now draw a line like in the image, and then project that line onto the surface from the Side window. Trim.





A rendering should look like this - the shoe is finished for now. As for placing it on the 'foot', use the third image from the top as a guide. Rotate the shoe slightly 'toes-out', just a few degrees.

