



# VIDI Presenter Professional 3.0 Tutorial

How to Model a Person  
by Peter Ratner ©1994

## Presenter Professional 3.0 Instructions for Modeling the Human Figure by Peter Ratner

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### Part 1 - Creating Two Legs and a Pelvis

1. Open Presenter 3.0
- 2) Press Command F to create a new folder in the Groups Info Palette and name it \*Entire L. Leg and press Add.

#### Creating the upper part of the leg

We'll start by creating the upper part of the leg which will also include one of the butt cheeks.

3. Press Command F to create another folder and name it All Splines and press Add.
4. Press E on the keyboard to get the Oval Tool.
5. In the top window draw a circle by dragging with the tool and pressing the Shift key down at the same time.
6. Go to the pen tool (4th one down from the top right) and select the one with the minus (-) sign.
7. Click with the pen tool in a blank area outside of the oval shape to turn off the selection and turn on the individual vertices.
8. Delete the vertices located at 11:00, 1:00, 5:00 and 7:00 o'clock. Your remaining vertices are located at 9:00, 12:00, 3:00 and 6:00 o'clock. The idea when modeling is to use the least amount of vertices as possible in order to save memory.
9. Press S on the keyboard to get the single arrow.
10. Click in a blank space somewhere outside the oval.
11. In the Groups Info palette select Ellipse 1 by clicking on it.
12. Press Command W to clone the ellipse.
13. In the Groups Info palette select the bottom Ellipse 1 (the one you just cloned) by clicking on it.
14. In the Front window begin dragging the oval down. Before you let go of the mouse button press the Shift key down to constrain it to a straight line movement. Let go of the mouse button first and then the Shift key.

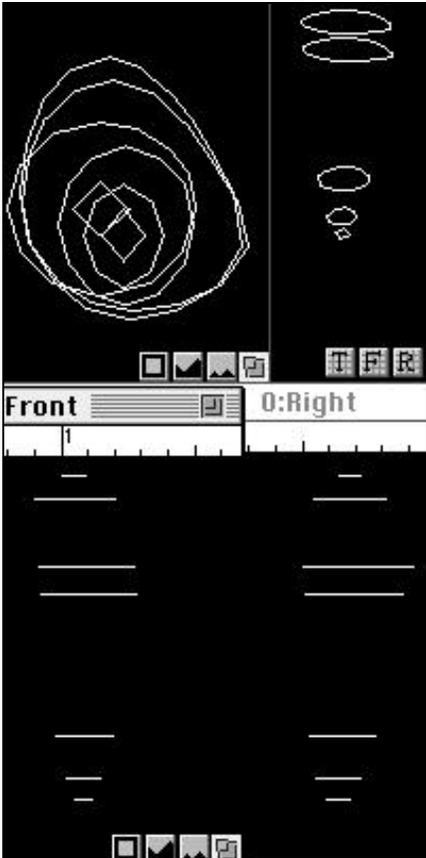


Illustration 1 - Splines for lofting the upper part of the leg

15. Drag the oval down about a couple of inches.
16. To see both ovals you might have to click on the fit to window square located in the bottom right of each view window (next to the large and small mountains buttons-zoom buttons). You can also fit to window all objects by pressing down both the Command and Space Bar keys to get the magnifying glass and double clicking in a window with it. To move your view of the objects (left, right, up or down) press the Space Bar to get the hand and at the same time click in a window and drag. Notice that in the 3D window using the hand causes the view to tumble. To move your view of objects in the 3D window press the Command and Space Bar down to get the magnifying glass and then without letting go of the Space Bar press the Option key down while letting go of the Command key. While keeping the Space Bar and Option key down, (you should see the cursor become the hand tool in the 3D window) click and drag on the model to move it in the center of the 3D window.
17. Continue to clone the oval and drag it down until you have 7 ovals lined up vertically and spaced out like those in *Illustration 1* on page 1. Don't worry about resizing yours like those in the illustration, we'll get to that soon. To center your view of all the ovals in the 3D window, select all the ellipses in the Groups palette by Shift clicking them and click on the fit to window square located in the bottom right of 3D window.
18. To resize the individual ovals just click on one of the Ellipse 1 names in the Groups palette to select it and press Command T to transform. In the Resize part of the Transform dialogue box, depending on whether you're enlarging or shrinking the oval type in either a smaller percentage or larger number for x, y & z. Use the same number for x, y & z or your oval will not only be resized, but its shape will be changed also.
19. For Center of Transform: select Selected Vertex(s). Click OK.
20. Continue to select the ellipses in the Groups palette and resize them by either using transform or dragging on the selection vertices (the 4 corner squares). If the vertices are filled you can drag them to resize the oval. If they're hollow, then you can drag them to reshape the oval. To get the hollow vertices for reshaping, click on the oval in any of the windows. To get the filled vertices for resizing, click on the name of the shape (Ellipse 1) in the Groups palette.

21. Continue resizing, reshaping and moving all the ovals into a similar position as Illustration 1 on page 1. If the order of your ellipses gets out of line in the Groups palette, you can always move them around by clicking on its name and dragging it to the right spot in the Groups palette. Double clicking on the name of an object in the Groups palette also allows you to change its name.

## Lofting the ellipses

22. At this time you will loft all the ellipses to form the top part of the left leg and butt.
23. Make sure the All Splines folder is open and the red arrow in the I column of the Groups palette is under the \*Entire L. Leg folder and above the All Splines folder. Folders have to be open if you want to select the objects within them individually.
24. Press S to get the single arrow and starting at the top of the Front Window, Shift select the first oval, then the second oval down, the third, etc. until all 7 are selected in order.
25. Click on the lofting tool, located as the 9th one down from the top left of the tool box. It has 3 shapes in it that progressively get smaller.
26. You should now see the top spline (oval) connect to the second from the top spline (oval). At the top of your screen is a horizontal tool info palette with 7 buttons. Click the one that says Next.
27. Continue clicking the Next button until all splines are connected. If you have problems such as two splines connecting incorrectly such as crossing over, click the reverse button or shift left or right buttons. If an extra vertex is added, then click the evenly button.
28. Finish the lofting process by clicking the Done button.
29. All the splines are now connected and form the upper leg. Notice that your Groups palette has a new object located under the \*Entire L. Leg folder and above the All Splines folder called Loft Mesh 1.
30. Double click on the name Loft Mesh 1 and in the dialogue box change its name to Upr Leg and click OK.
31. Now it's time to reshape the upper leg.
32. While pressing the Command key down, click in the D column of the Groups palette next to the All Splines folder. Notice that the D column display for that folder and all the Ellipses in it become blank, meaning everything is invisible in that folder. Keeping the Command key down click again in the D column of the Groups palette next to the All Splines folder. Now there is a black rectangle next to that folder and every object in it and they are visible again. Click in the D column next to the Upr leg object to make the lofted upr leg invisible. Press Command D to redisplay all the windows. You should now see only the ovals. Press the Option and Command keys down at the same time and click in the D column next to the All Splines folder. The black rectangle next to that folder and every object in it is now gray, meaning that everything is shown in fast boxes display. Press Command D to see for yourself. Press the Command key down and click in the D column of the Groups palette next to the All Splines folder. Press Command D to redisplay. Notice that you now have the full display of all your ovals with black rectangles next to all objects in the All Splines folder. Press the Option key down and click in the D column next to one of the Ellipse 1 names. Notice that the rectangle becomes gray for only that one object. Clicking in the D column next to a folder or object without holding down any keys will cause the display to be either black (visible) or blank (invisible).

## Summary

Option key plus clicking in the D column = gray display for 1 object

Option and Command keys plus clicking in the D column next to a folder = gray display for all objects in the folder

Command key plus clicking in the D column next to a folder = either a black or blank display for all objects in the folder

No keys held down and clicking in the D column next to a folder or object = either a black or blank display for one object or one folder

The D column next to a folder has to have a black display if you want to see any of the objects inside of it

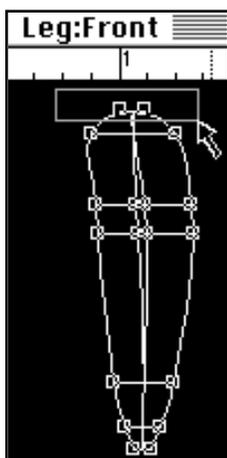


Illustration 2 - Selecting the upper 4 splines

## Reshaping the upper part of the leg

33. The first part of reshaping the upper part of the leg is to close the top and bottom sections.
34. Hide all the splines by pressing the Command key down while clicking in the D column next to the All Splines folder in the Groups palette until the D column shows nothing but a blank display for all the Ellipses.
35. Make sure that the Upr Leg object is visible (black rectangle in the D column next to Upr Leg).
36. Press S on the keyboard to get the single arrow and select the upper leg by clicking on one of its lines in any window.
37. Select the very top four vertices by drawing a selection marquee around them in the front window. see Illustration 2 on page 3.
38. Press the Command and Space bar keys down at the same time to get the magnifying glass and use it to get a close up of the selected vertices by dragging around them in the front and top windows. Notice they are filled while the unselected ones are hollow.
39. Select the resize tool located as the 3rd one down from the top left. It has a smaller square with an arrow and a larger dotted square icon.

40. At the very top of the screen you should now see a horizontal tool info palette. Next to the word Anchor: click on the pop-up menu that currently says User Defined Point and select Selected Vertex(s).
41. In the top window click on the top filled vertices and drag down only until you see the top oval shape close up into a straight line.
42. Now click on the far right selected vertices in the top window and drag to the left only until all the selected vertices close up so they look like they've been squashed together.
43. Press the Command and Space bar keys down at the same time to get the magnifying glass and use it to get a close up of the selected vertices in the front window. If you see that the selected vertices aren't together tight enough, then click on the far right one and drag it to the left.

#### 44. To summarize the use of the resize tool:

Dragging down and to the left will reduce selected objects.  
 Dragging up and to the right will enlarge selected objects

45. Repeat the same previous steps to close up the bottom vertices of the upper leg. Remember to use the single arrow first to select all four of them before using the resize tool. You can access the arrow by pressing and keeping the Command key down. When you're done using the arrow to select the vertices, let go of the Command key and you will still have the resize tool.
46. Next, you will reshape the leg using the control points of selected vertices.
47. Press S on the keyboard to get the single arrow.
48. In the front window click on the right angled vertical line (spline) next to the bottom vertices that you just closed up.

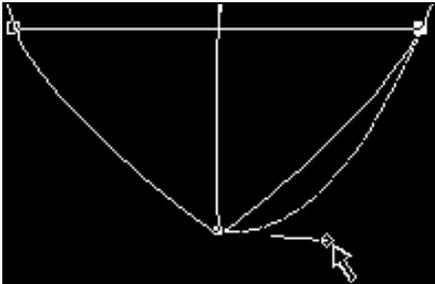


Illustration 3 - Reshaping a spline using its control point.

49. Use the magnifying glass to zoom in or out until you see a hollow diamond shape control point near the very bottom vertices. The magnifying glass works this way:

Command + Space bar = zoom in (magnify)

Space bar + Option key = zoom out (smaller view)

Command + Space bar + double click in any window = fits view of all visible objects in window

50. The control point will most likely be located very close or almost on top of the bottom vertices. In order to select the control point instead of the vertices, press the Control key down while clicking on the control point and drag to the right until the spline becomes more rounded. See *Illustration 3* on page 4.

51. Now, in the front window, with the single arrow, click on the left angled vertical line (spline) next to the bottom vertices and drag the control point to the left until the spline becomes more rounded. Use the Control key if you have trouble selecting the control point.

52. Get a close-up of the bottom of the leg in the right window and reshape the left and right vertices so they are more rounded.
53. Reshape and round the top of the upper leg using the same methods that you used for rounding the bottom of the upper leg.

54. If you think your leg needs reshaping in other areas such as rounding the butt more, then just click on those vertices and use their control points. To add extra vertices use the single arrow to click on the vertices where you want to insert another one, go to the pen tool with a + sign (4th one down on the right) and click on the vertices with it. To delete a vertices use the pen tool with a minus sign on it (hold down on the pen tool in the tool palette until it pops up, then select it).

#### Creating the lower part of the leg

55. Now, it's time to create the lower part of the left leg.
56. Instead of creating new splines (ellipses) we'll use the ones you used for the upper part of the leg.
57. Press the Command key down and click next to the All Splines folder until there's a black rectangle in the D column next to all the ellipses in the folder. The folder should be open (click on the gray triangle next to the folder until it points down).
58. Click on the folder called All Splines, go to the tool palette and change the color of all the ellipses by clicking on the white square at the bottom, hold down the mouse button until a color palette shows up and drag to the color you want. You should now see the splines.

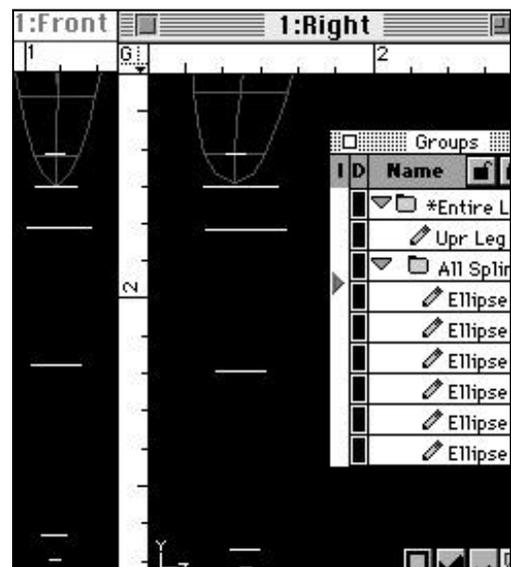


Illustration 4 - Setting up splines for lofting the lower leg

59. Click on the name of the individual ellipses in the Groups palette to select the ones you need and drag them down and resize them (use the resize tool with Selected Vertex(s) for Anchor in the horizontal tool info palette located at the top of the screen) until they are arranged like those in *Illustration 4* on page 4. Holding down the Shift key helps keep the splines straight when resizing.
60. When you think the 6 splines form the framework for a good lower leg, then you're ready to loft them.
61. Close the All Splines folder and make sure the red insertion arrow is at the bottom of the Groups palette.

### Lofting the Ellipse

62. Press Command F to create a new folder and name it \*L. lwr leg. Click the Add button. Move the red insertion arrow below this new folder that you've just created.
63. Loft the lower leg splines by Shift selecting each ellipse in the Groups palette starting with the top one and working down to the very bottom one.
64. Double click on the word Loft Mesh in the Groups palette and rename it lwr leg.
65. Hide all the splines and reshape the bottom leg by closing up the very top and bottom and pulling on individual vertex and their control points. It should look like the one in *Illustration 5* on page 4.

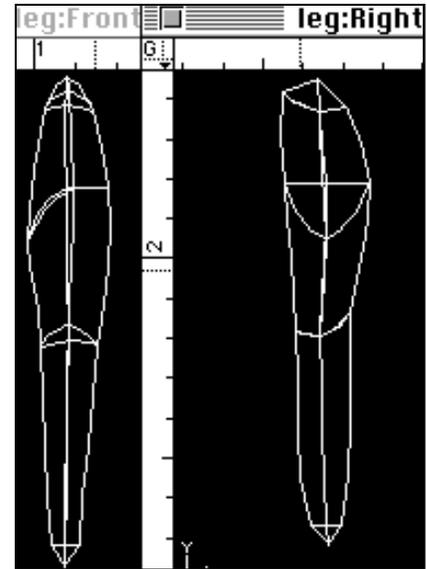
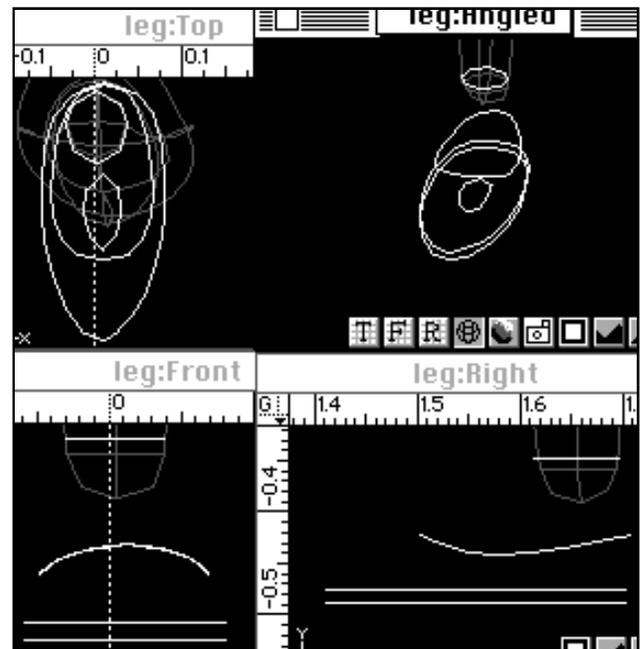


Illustration 5 - Lofted and reshaped lower leg

### Creating a shoe

66. The next step is to create a shoe.
67. Drag one of the splines, that you used to loft the lower leg, down to where the shoe should be positioned. Duplicate it 5 times and reshape and resize all 4 so they look like *Illustration 6* on page 4. Notice that the bottom spline has a smaller spline inside of it. You can only see it in the top and angled views because it's on the same plane as the bottom spline. After you loft you will close up that part so the shoe has a bottom surface, otherwise you could look right up the shoe and see the leg.
68. Drag the red insertion arrow below the lwr leg part in the Groups palette and press Command F to get a new folder and name it \*shoe.
69. Set the color for the top shoe spline to the same color that your leg is going to be - probably a skin color.
70. Set the color of the bottom 3 shoe splines to the color that you want the shoe to be.
71. Loft the 4 splines together. Notice that the upper part of the shoe is a different color to match the skin tone of the leg, so it looks like the lower leg is inside of a slipper-like shoe.
72. Double click the name Loft Mesh 1 in the Groups palette and rename it shoe.
73. Reshape the shoe if you need to and close up the bottom part by hiding the splines and using the top and angled views to Shift select the 4 vertices of the small bottom spline inside the larger bottom spline, then use the resize tool in the top view to squish the 4 vertices together. Don't forget to have the Anchor setting on Selected Vertex(s).
74. Check the bottom of the shoe in the angled view window using the shaded view to see if you have a bottom surface.



75. Your finished left leg and Groups palette should look like *Illustration 7* on page 5.

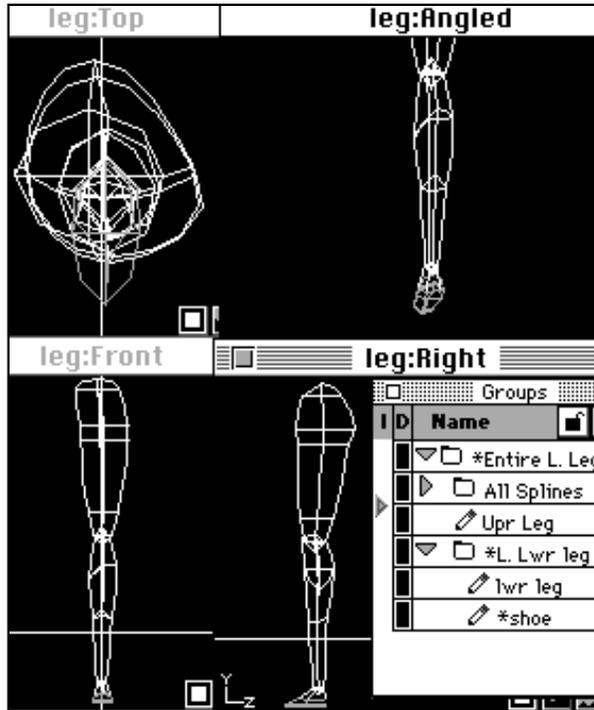


Illustration 7 - The final left leg and arrangement of folders and objects in the Groups palette

### Creating a pelvis

76. The next step is to create a pelvis.

77. Using one of the ellipses in the All Splines folder, drag it to the top of of the left leg and make it larger using either transform or the resize tool.

78. See *Illustration 8* on page 5 to see how to set up and shape the 4 splines.

79. Loft the splines and reshape the pelvis to look like the one in *Illustration 9* on page 5.

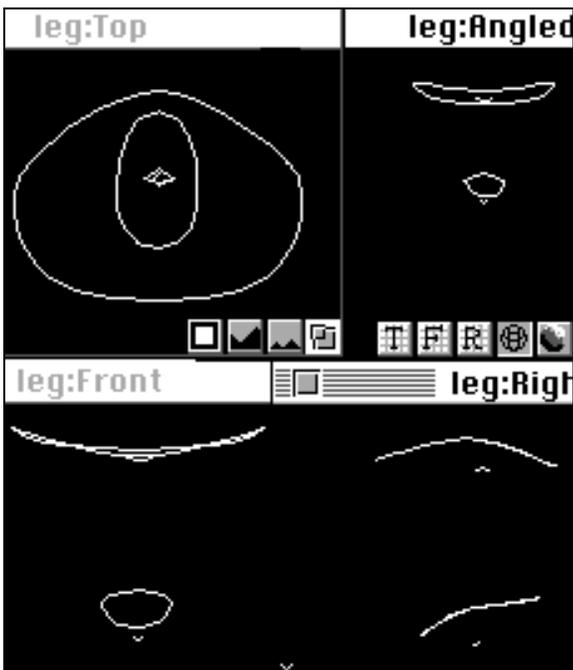


Illustration 8 - The 4 splines used for lofting the pelvis

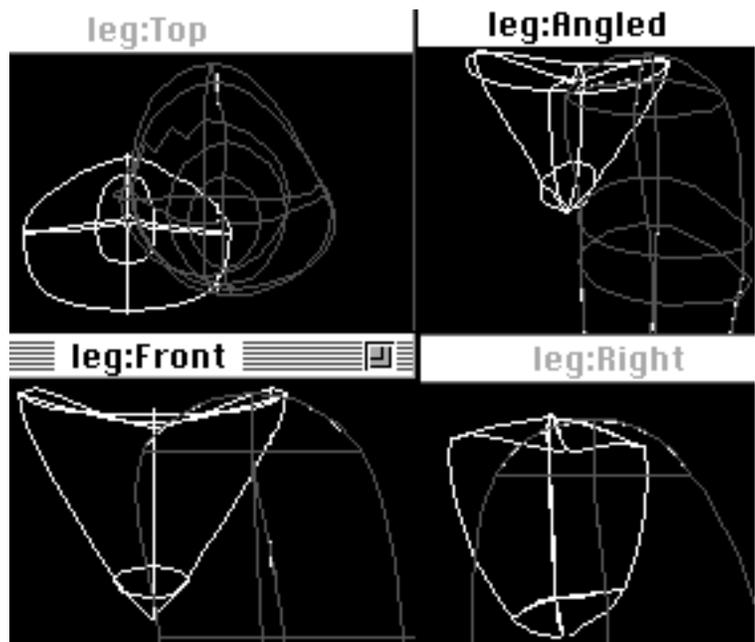


Illustration 9 - The final lofted pelvis with the top part of the left leg showing in darker gray

80. Double click the word Loft mesh (pelvis that was lofted) and rename it pelvis. In the Groups palette drag it above the \*Entire L. Leg folder.

## Creating the right leg

81. The next part is to duplicate the left leg and flip it horizontally in order to create the right leg.
82. Select the \*Entire L. Leg folder by clicking on it in the Groups palette.
83. Press Command W to duplicate it, then go to the Mirror tool which is the 4th one down from the top left in the tool palette. It's right below the resize tool.
84. In the top tool info palette, for Anchor: pick Selected Vertex(s) and put an x in the Incremental Degrees and type in 180°. Use the Mirror tool in the front window to rotate it at the mid point, so it's flipped horizontally.
85. In the front view window start dragging the flipped leg to the left and as you drag hold down the Shift key to constrain it to a straight line movement.
86. Position the right leg in the same area as in *Illustration 10* on page 6. Rename the folder and leg parts within it so they have the name right leg for all the parts.

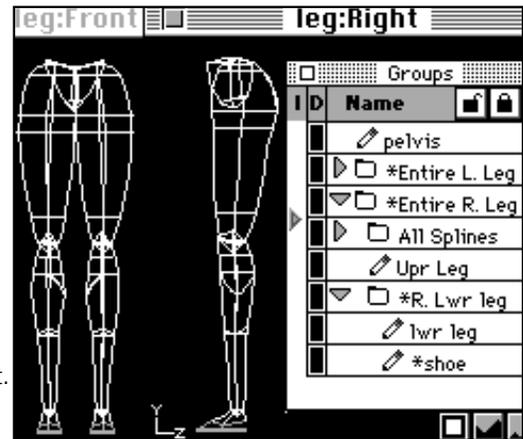


Illustration 10 - Left and right legs and pelvis - notice the order of the Groups palette

## Grouping for animation

87. It's very important to keep your objects and folders straight or you won't be able to animate your character. For example: if the right foot isn't inside the lower leg folder and you try to move the lower leg by assigning a number value to the lower leg folder that tells it to rotate back 30°, you will find that the foot was left behind. The reason for that is because the folder and everything inside of it was moved 30°. Since the foot wasn't inside that folder, it was left behind. Therefore, the pelvis object is located at the top of the Groups palette, outside and above the \*Entire L. Leg folder. Inside the \*Entire L. Leg folder you find the Upr Leg object first, underneath that is the \*L. Lwr leg folder and inside that folder are the lwr leg and \*shoe objects. The folder with the splines can go anywhere since those won't show up in your animation. You can move objects and folders around by clicking and dragging them in the Groups palette. To move a folder or object inside another one, just drag it above that folder you want to put it in and then drag it under that same folder. Make sure the folder you want to put it in is open - gray arrow next to the folder points down.
88. The reason for putting an asterisk \* in front of certain folders and objects is to indicate that those folders and objects will have a rotation point. For example: the \*L. Lwr leg folder has a rotation point located at the knee so that when you rotate the folder back 30° it rotates around the knee axis.

## Setting rotation points

89. We're now going to assign rotation points to the left leg.
90. Hide the splines, pelvis and \*Entire R. Leg by pressing the Command key down and clicking in the D column next to the All splines folder, pelvis object and the \*Entire R. Leg folder.
91. In the Right view window place the mouse cursor (don't click it-just place it) in the center of the uppermost part of the upper leg (use the magnifying glass to get a closer view) and press the Space bar down once. This locks the location of where you want to place a marker.
92. In the Front view window, go to the top left corner of your ruler guides where you see the G and click on it and drag down until you select the M and drag the M to the center of the top of the upper leg. You should now have a marker (+) located at that spot and in the center of the top leg in the right view. If it's not in the right spot, go to the Options menu and select Clear All Markers. and try again. You can also select the marker and move it in the top, front or right views.
93. Double click on the \*Entire L. Leg name in the Groups palette to select the entire left leg and bring up the Object/Group Info dialogue box.
94. In the bottom middle section where it says Rotation Point, click on the arrow pointing to the right and select Marker 1. Click OK.
95. Use the front and right windows to set a marker for the rotation point of the \*L. Lwr leg folder. It should be located somewhere in the middle of the knee. Your second marker (+) will have a 2 next to it to indicate that it is marker 2.
96. Double click on the \*L. Lwr leg folder and in the Object/Group Info dialogue box click on the arrow for Rotation Point and select Marker 2. Click OK.
97. Test your rotation point by clicking on the \*L. Lwr leg folder in the Groups palette to select it and press Command T. In the Transform dialogue box for Center of Transformation select Rotation Point. Under Rotate, for Right, type in -40. Click OK.
98. In the right view and angled shaded views, look at the leg and see if it rotated the lower part correctly. Did the foot move with the lower leg? Get a close view of the knee. Does it look OK, or do you need to reshape it?
99. Press Command Z if you don't have to reshape to put it back to the way it was.

100. If you have to reshape the left leg, then delete the right leg so you don't have to do the same thing to it. Instead, finish reshaping the left leg, then rotate it back into its original position (+40 for Right), clone it (Command W), use the Mirror tool in the front window to rotate it 180° so it's flipped horizontally, move it in place and rename it right leg.
101. Set a rotation point for the \*shoe using marker 3. Test the rotation of the shoe.
102. Once you finish setting all the rotation points for the left leg, then set them for the right leg.
103. If you forget to set a rotation point for a certain part, you will find that when you try to animate that part, it will fly off into space. You might even lose it forever.
104. The final part before going into Presenter is to create a folder that contains both legs and the pelvis and assign a rotation point to it.
105. In the Groups palette, move the red insertion arrow to the very bottom underneath both leg folders. Close all open folders and press Command F and title the new folder \*Body. Press Add.
106. Drag the pelvis object and both left and right leg folders under the \*Body folder to place them inside it.
107. Double click the folder name \*Body and for Rotation Point select Object Center. Click OK.
108. Save your final model and back it up with one that has a different name and quit Modeler 3.0.

## Animating the Two Legs

The following exercise will teach you how to use the Presenter 3.0 program to assign, shaders, cameras, lighting and movement to your existing model. It's assumed that you have all your folders straight and rotation points set for all objects and folders with an asterisk \*.

1. Open Presenter 3.0.
2. Press Command O to open your legs and pelvis model.
3. You should see 3 view windows at the bottom and 1 camera view window at the top right. You control all the action with the script window on the top left.
4. If you can't see the camera in the 3 view windows, reduce the size of the views or press the fit to window square in the lower right of the view windows.

## Camera positioning

5. Click on the line coming from the camera and move the camera so it's pointing to the right of the two legs. Use the hand grabber tool to move your view around and the arrow tool to move the camera.
6. To rotate the camera's view grab the round dot at the end of the line coming out of the camera and move it so it points at your model. You can also use the rotation tool (second from the top-under the arrow tool) and by clicking and dragging on the camera itself rotate it around.
7. You should start seeing your model in the Active Camera view window. To change the resolution of your view click on one of the 4 buttons with a red dash (-) on each, located to the right of the camera view and under the VCR type of controls. Starting with the left button, it will show a fast box view (good for previewing animations in near real time) all the way to the far right for the best resolution which shows a more solid model, but takes the longest to redraw. The 3 Buttons with a red dash (-) on the top right hand corner of the screen control the resolution of the model(s) in the top, front and right windows.
8. If you click and push and pull on the two squares that form part of the camera you can make your view wider or narrower.
9. Place the camera so you can see both legs and pelvis from the side and they should be located to the far right in the Active Camera view. See *Illustration 11* on page 9.
10. Assign a light to your model by clicking on the light bulb tool and clicking with it in the top view to the right of the model so that it illuminates the side that the camera is pointing at. Use the arrow tool to move the light around. If you double click the light in one of the windows or in the Script window you will get a dialogue box that allows you to set the brightness and color of the light. Clicking and dragging on the 4 vertices of the light bulb in the 3 views, also allows you to set the brightness of the light.
11. If you want the light to follow the model, then place it in the \*Body folder by opening the folder and dragging the light under it.

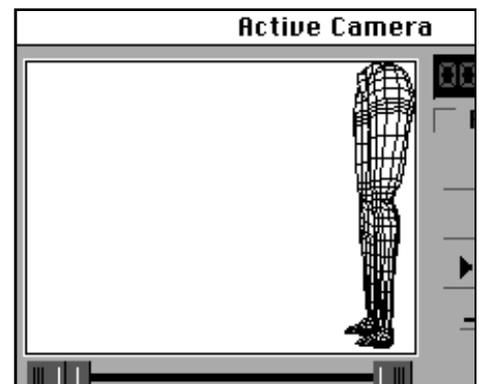


Illustration 11 - The starting view of the model in Presenter 3.0

## Selecting RenderMan shaders

12. At the beginning of each animation you want to set your Renderman shaders.
13. Double click \*Body folder, go to the Windows menu and select Attributes. For Attributes select Shaders and find Hide, Suede.
14. Drag the Hide, Suede shader to the Attributes section of the large Base Information dialogue box.
15. You only need to assign a shader(s) to the main folder to automatically assign the shader to everything in it.
16. In the Script palette you should now see a small red square next to the folder you assigned a shader to.
17. See the section Working with Renderman Shaders to find out more detail about shaders.

## Animating the legs

18. In the Script palette to the right of the list of all objects and underneath the 00:00 time, move the blue arrow that points down to the right and under the 00:01 time setting. This means that you are now going to have the body perform a movement 1 second after the start of your animation.
19. Double click on the \*Body folder and in the Base Information dialogue box next to Offset, in the z box, type -0.5. Close the dialogue box.
20. Notice that the body is in a forward position and that there is a small red circle in the Script palette next to the \*Body folder and under the 00:01 time setting. You can double click on that red circle anytime and change the settings.
21. Open the \*Body folder and double click on the \*Entire R. Leg folder. In the Base Information dialogue box next to Rotation, type 35 in the x box (1st box of the 3 x,y & z boxes). Close the dialogue box.
22. The entire right leg should be raised forward in a marching position.
23. Double click on the folder \*Entire L. Leg and in the Base Information dialogue box, next to Rotation, type -5 in the x box. Close the dialogue box.

24. Double click on the folder \*L. Lwr Leg and in the Base Information dialogue box, next to Rotation, type -15 in the x box. Close the dialogue box.
25. Double click on the \*shoe that's inside the \*L. Lwr leg folder and in the Base Information dialogue box, next to Rotation, type 5 in the x box.
26. You should have 5 small red circles underneath the 00:01 time line which indicate which parts have moved at this time. See *Illustration 12* on page 8.

27. Drag the blue arrow that points down under the 00:01 time to under the 00:02 time.
28. Double click the \*Body folder and in the Base Information dialogue box next to Offset, in the z box, type -1. Close the dialogue box.

29. Double click on the \*Entire R. Leg folder and in the Base Information dialogue box next to Rotation, type 10 in the x box. Close the dialogue box.
30. Double click on the \*R. Lwr leg folder and in the Base Information dialogue box, next to Rotation, type -10 in the x box. Close the dialogue box.
31. Double click on the \*Entire L. Leg folder and in the Base Information dialogue box next to Rotation, type 0 in the x box. Close the dialogue box.

32. Double click on the \*L. Lwr leg folder and in the Base Information dialogue box next to Rotation, type -50 in the x box. Close the dialogue box.
33. Double click on the \*shoe in the \*L. Lwr. leg folder and in the Base Information dialogue box next to Rotation, type 0 in the x box. Close the dialogue box.

34. See *Illustration 13* on page 10 to see what your image should look like after 2 seconds of animation.

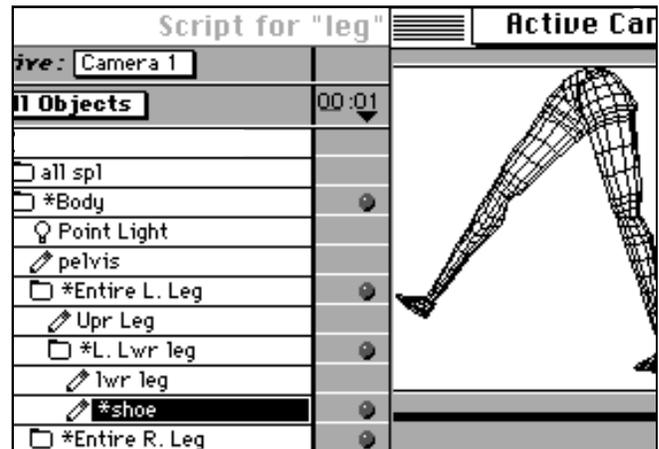


Illustration 12 - The second view of the model after 1 second of animation

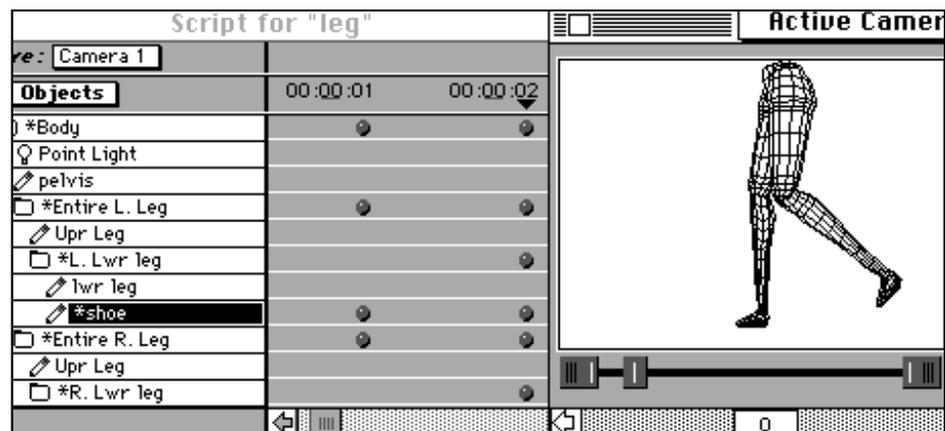


Illustration 13 - The third view of the model after 2 seconds of animation

35. Check out your animation, so far by Moving the slider under the Active Camera window to the left to rewind and then move it to the right. You can also watch the movement in all the windows by Option clicking on the play button in the Active Camera window. To see the model move faster set all your views to fast boxes. Press the stop button next to the play button to end your animation preview.
36. Drag the blue arrow that points down under the 00:02 time to under the 00:03 time.
37. Double click the \*Body folder and in the Base Information dialogue box next to Offset, in the z box,, type -1.4. Close the dialogue box.
38. Double click on the \*Entire L. Leg folder and in the Base Information dialogue box next to Rotation, type 35 in the x box. Close the dialogue box.
39. Double click on the \*L. Lwr leg folder and in the Base Information dialogue box, next to Rotation, type 0 in the x box. Close the dialogue box.
40. Double click on the \*Entire R. Leg folder and in the Base Information dialogue box next to Rotation, type -5 in the x box. Close the dialogue box.
41. Double click on the \*R. Lwr leg folder and in the Base Information dialogue box, next to Rotation, type -5 in the x box. Close the dialogue box.
42. Double click on the \*shoe in the \*R. Lwr leg folder and in the Base Information dialogue box, next to Rotation, type 10. Close the dialogue box.
43. Your Active Camera view should now look like *Illustration 14* on page 11.

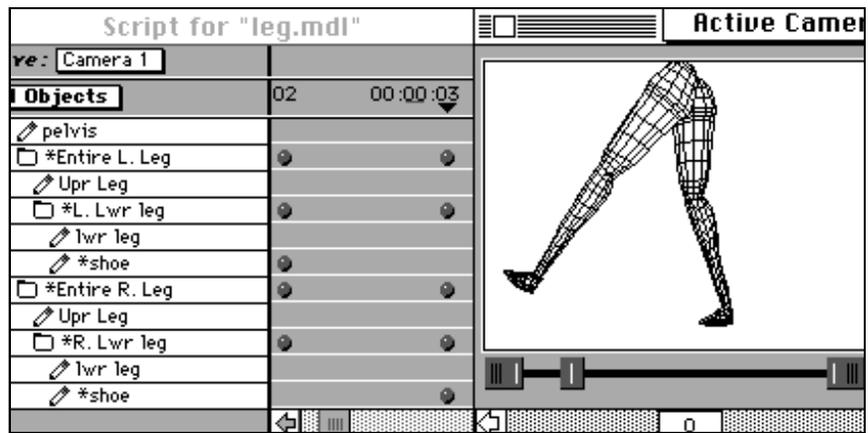


Illustration 14 - The fourth view of the model after 3 seconds of animation

44. Drag the blue arrow that points down under the 00:03 time to under the 00:04 time.
45. Double click the \*Body folder and in the Base Information dialogue box next to Offset, in the z box, type -1.9. Close the dialogue box.
46. In the Base Information dialogue box, next to Rotation, type the following settings for these objects and folders:
  - \*Entire L. Leg - Rotation: type 0 in the x box.
  - \*Entire R. Leg - Rotation: type 0 in the x box.
  - \*R. Lwr leg - Rotation: type -40 in the x box.
47. Your fifth view at 4 seconds of animation should look like *Illustration 15* on page 11. Play the animation.

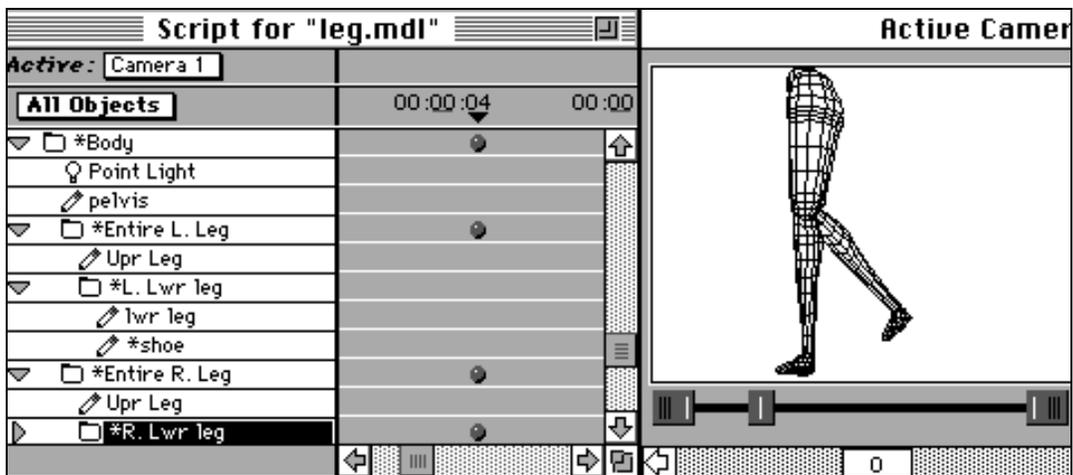


Illustration 15 - The fifth view of the model after 4 seconds of animation

48. Continue moving the legs all the way up to 8 seconds. You can use the same rotation settings for the 5th second as you did for the 1st second. For the 6th second refer to rotation settings at the 2nd second, for the 7th second refer to the rotation settings used in the 3rd second and so on. But, you can't use old settings for moving the \*Body folder forward.
49. An easy way to duplicate the previous animation settings is to select all the red dots lined up vertically under the 1st second mark except for the one that moves the body forward (you will have to set that manually, later) and while pressing the Option key down, drag the duplicate settings under the 5th second mark.
50. The following chart summarizes the animation settings for the legs but only 4 seconds for the body.

### Walking in Presenter 3.0

Time is in seconds	<b>1, 5, 9...</b>	<b>2, 6, 10...</b>	<b>3, 7, 11...</b>	<b>4, 8, 12...</b>
<b>Body</b>	<b>-.5</b> (1st sec. only)	<b>-1</b> (2nd sec. only)	<b>-1.5</b> (3rd sec. only)	<b>-1.9</b> (4th only)
<b>Entire R. Leg</b>	<b>35</b>	<b>10</b>	<b>-5</b>	<b>0</b>
<b>R. Lower Leg</b>	<b>0</b>	<b>-10</b>	<b>-5</b>	<b>-40</b>
<b>R. Shoe</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>10</b>
<b>Entire L. Leg</b>	<b>-5</b>	<b>0</b>	<b>35</b>	<b>0</b>
<b>L. Lower Leg</b>	<b>-15</b>	<b>-50</b>	<b>0</b>	<b>0</b>
<b>L. Shoe</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>

## Exercise 2 - Modeling the human figure

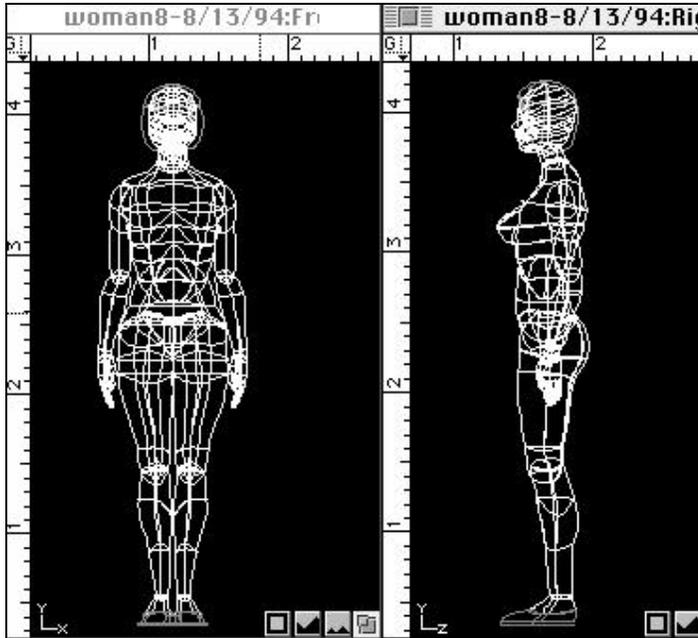


Illustration 1-Two views of the entire wireframe model

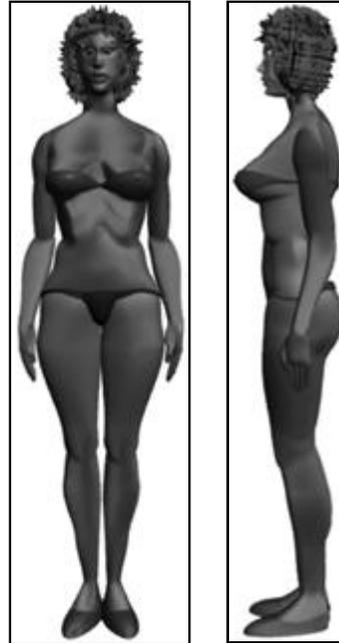


Illustration 2 - Rendered views of the entire 3D model

So far you've learned some of the basics of modeling and animating. To continue with the lesson, you will learn how to model the rest of the body and the head. There's no doubt that modeling a face is the hardest part and will probably take you longer than doing the body.

### Using Templates

1. A helpful step to creating a model in proportion is to import into Modeler some PICT files of sketches or photographs that show the front and side views of a model. See Illustration 3.
2. To import PICT files into Modeler, go to the Windows menu and select Display Image/Movie.
3. Once you've opened a PICT file, click on the name of the PICT file on top. You should now see a pop-up menu that says Copy PICT into Database. Select that option and close the PICT file by clicking in the small top left square.
4. If you click on the fit to view square in the front window, you will see your file in Modeler.
5. You can click on it to select it or go to the Groups palette and click on its name.
6. If you brought in a side view use the Transform command to rotate it 90° so you can see it in the Right window. Bring in your other views, but be careful not to overload the program's memory by bringing in too many large PICT files. If possible convert them to black and white images and crop closely around them in an image editing program like Photoshop before bringing them into Modeler.
7. You will find it easier to model the figure starting at the bottom and working up to the head.

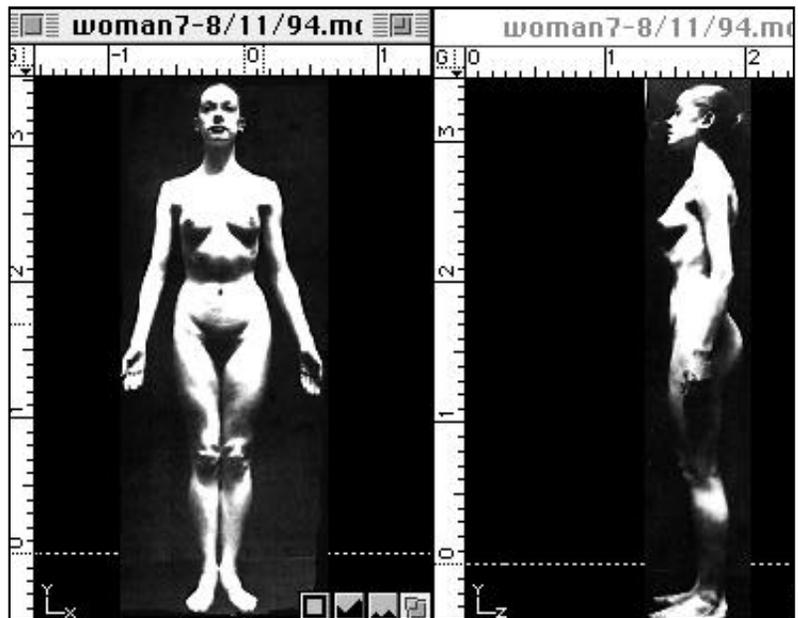


Illustration 3 - Two PICT files brought into modeler and copied into the database to be used as templates.

## Setting the group hierarchy

- In the previous lesson in which you modeled two legs and a pelvis, you learned a little about hierarchies of folders and objects. By putting them in the right order you were able to animate the legs. Illustrations 4 and 5 show the order your folders and objects are supposed to be for the entire figure. It's very important that you create folders and put them in order while you model each part or you will find yourself in a big mess of objects when you're finished. Rotation points can be set after you're done modeling everything.
- An important rule to keep in mind is that rotation points are set for every folder and never for the objects within them except the last object in a folder that has movement such as the last digit of a finger or a foot.

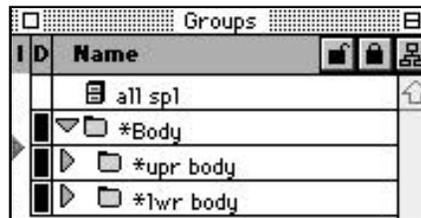
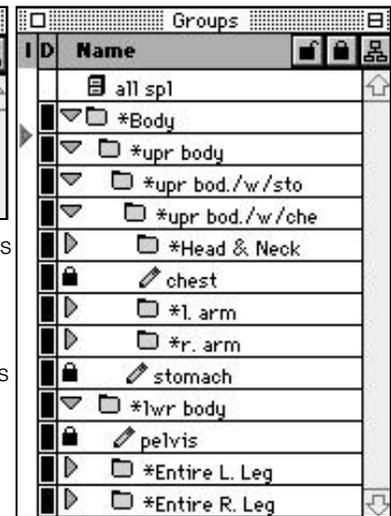


Illustration 4 - The arrangement of folders and objects. Notice that the Groups at the top have an overall folder “\*Body” which contains two separate folders - “\*upr body” and “\*lwr body”. The Groups to the right have the two folders “\*upr body” and “\*lwr body” partially open to reveal their contents.



- Be sure to study Illustrations 6, 7, and 8 to see a detailed view of what is inside some of the main folders.

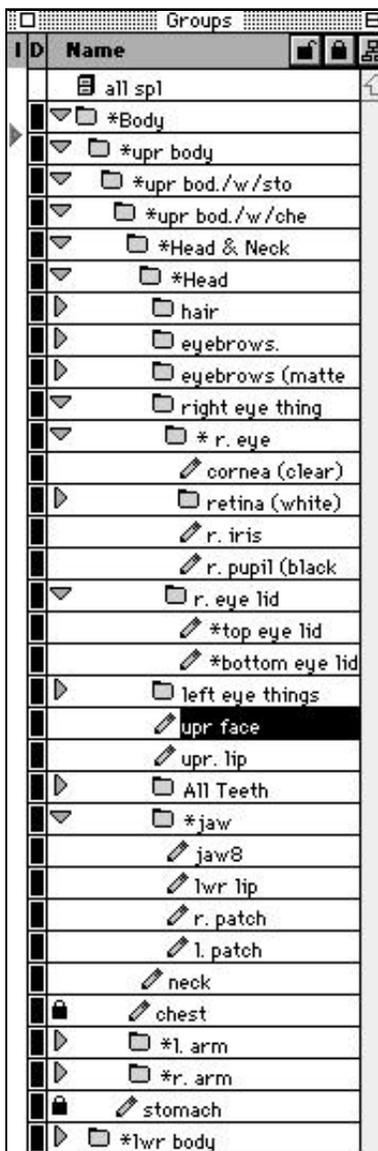


Illustration 6 - A detailed view of the upper body folder's contents. In this example the jaw is kept separate from the upper face so that it can move independently when the model talks.

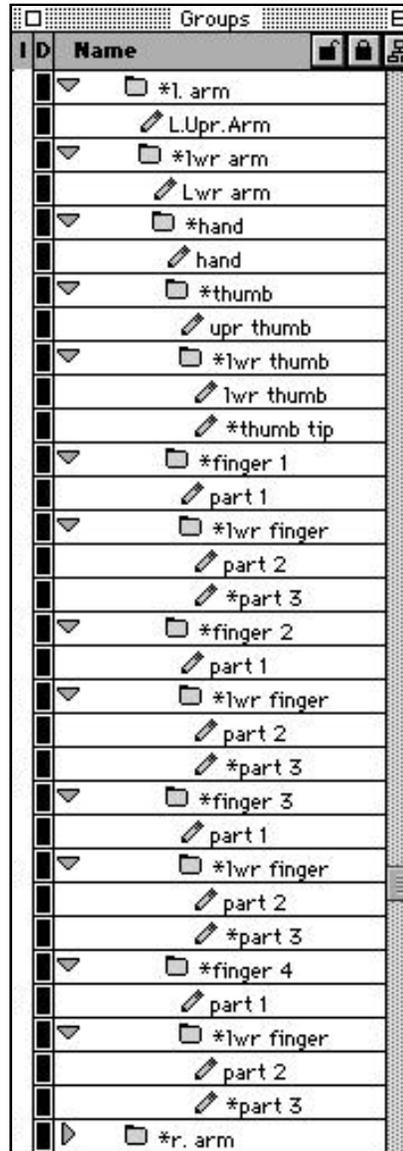


Illustration 7 - A detailed view of the left arm folder showing all the folders and objects within it. Notice the asterisk in front of the last digits of the fingers and thumb. They are some of the few objects that have a rotation point. Normally, only folders have rotation points.



Illustration 8 - The lower body and its contents.

11. The Groups palette uses a similar hierarchical system of folder arrangement as the Macintosh desk top environment. If you would like to view your folders and objects in a more graphic manner such as that in *Illustration 5*, then click on the top right button of the Groups palette. To collapse the palette click on the very top right split square.

12. You can use the lower body model that you completed in the last exercise or start a new one using PICT files that you import for templates by copying them into the database.

13. If you're starting fresh just repeat the modeling steps for the lower body given in exercise 1 - Creating Two Legs and a Pelvis.

14. Before starting the stomach, create 3 folders inside the \*Body folder by clicking on the gray triangle next to the word \*Body so it points down to show it's open. Then, press Command F to create a new folder and title it \*upr body Since the new folder is automatically open, you can press Command F to create another new folder and name it \*upr bod./w/stomach. Press Command F to create another new folder and name it \*upr bod./w/chest.

15. Now, close the \*upr bod./w/chest folder by clicking on the gray triangle and create another folder for the stomach splines. Remember, we keep the stomach outside the \*upr bod./w/chest folder so that we can bend the upper body with the chest above the stomach area. To bend the body at the waist, you would rotate the \*upr bod./w/stomach folder which contains the stomach.

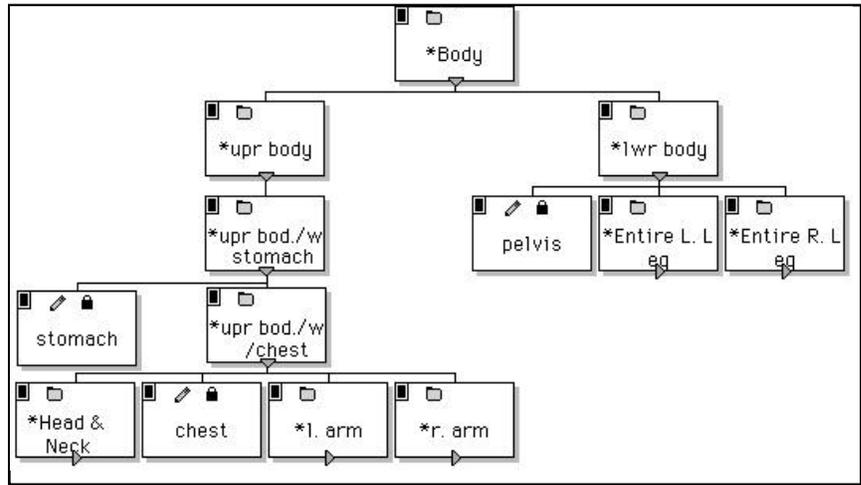


Illustration 5 - The arrangement of folders and objects in a hierarchical manner. Notice that the stomach resides outside of the “\*upr bod./w/ chest” folder so that the upper body can bend above the stomach by rotating the “\*upr bod./w/ chest” folder. Since the stomach is inside the “\*upr bod./ w stomach” folder, the body can bend at the waist by rotating that folder.

### Modeling the stomach

16. Using the oval spline tool, press E on the keyboard, draw an oval located near the top of the legs and pelvis.

See *Illustration 9*.

17. Reshape the spline like the white one in *Illustration 9*.

18. You won't need to delete vertices since you will use all six to shape the stomach.

19. Duplicate the spline and position, resize and reshape all 5 like those in *Illustration 10*. The second spline from the top has a front vertices that goes up to form the chest cavity.

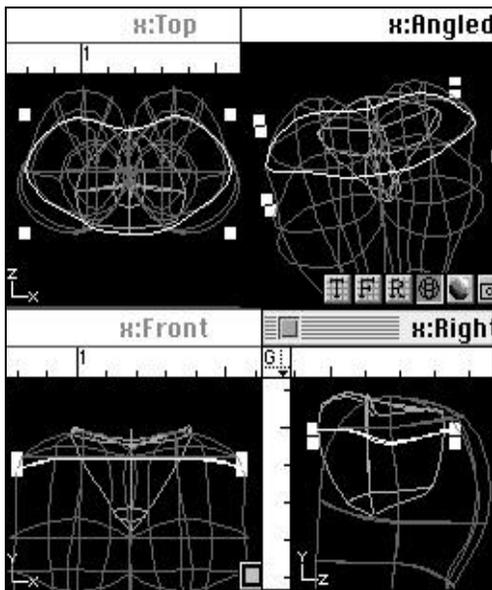


Illustration 9 - The first stomach spline, reshaped and positioned correctly.

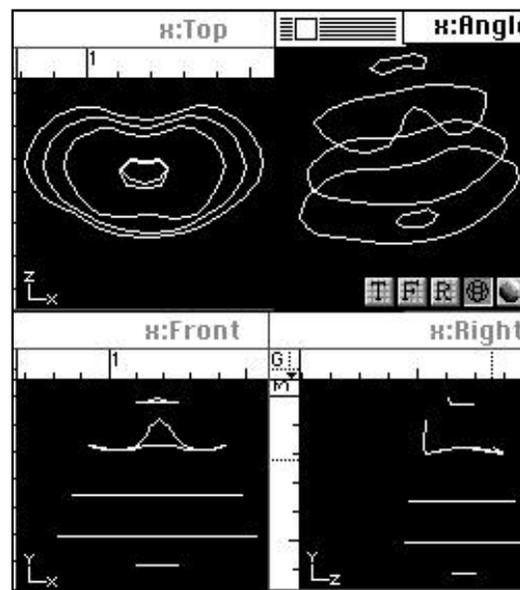


Illustration 10 - All 5 stomach splines, reshaped and positioned correctly.

20. Now loft all 5 of the splines and reshape the stomach so it looks somewhat like Illustration 11.
21. Obviously, if you're modeling a man you'll have to make adjustments such as making the hip area narrower than the shoulders and maybe even adding an appendage.
22. In the Groups palette double click on the newly lofted object called Loft Mesh and change its name to Stomach. and move it so it's located in the \*upr bod./w/stomach folder, but not inside the \*upr bod./w/chest folder.

### Modeling the chest

23. The next step is to model the chest.
24. Instead of creating a new spline, you will use the second from the top stomach spline - the one that you bent to form the chest cavity.
25. Create a new folder for the chest splines, then click on the second from the top stomach spline to select it in the Groups palette and press Command W to clone it. It should now show up as a duplicate in the chest splines folder.

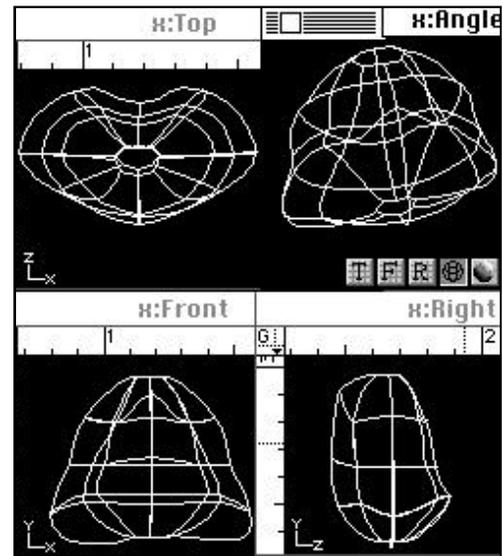


Illustration 11 - The finished lofted and reshaped stomach

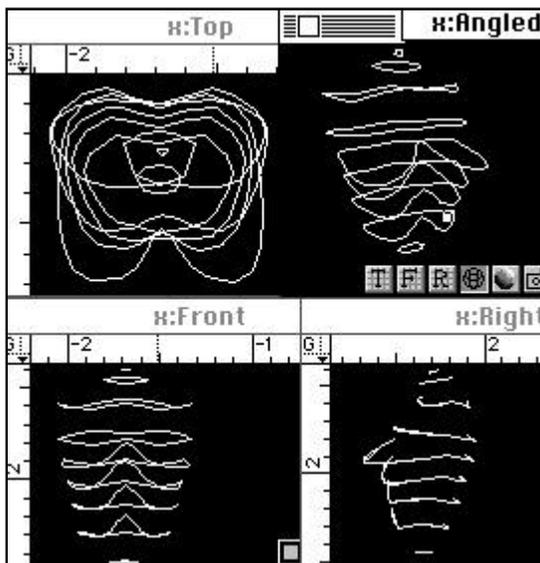


Illustration 12 - The 9 chest splines

26. Duplicate the chest spline until you have 9 splines like those in Illustration 12. Reshape and resize them like those in the illustration. If you're doing a male, then make your adjustments accordingly especially with the 4th spline from the top.
27. Move the red insertion triangle in the Groups palette right underneath the open \*upr bod./w/chest folder.
28. Loft the 9 splines and reshape the chest so it looks somewhat like the one in Illustration 13.

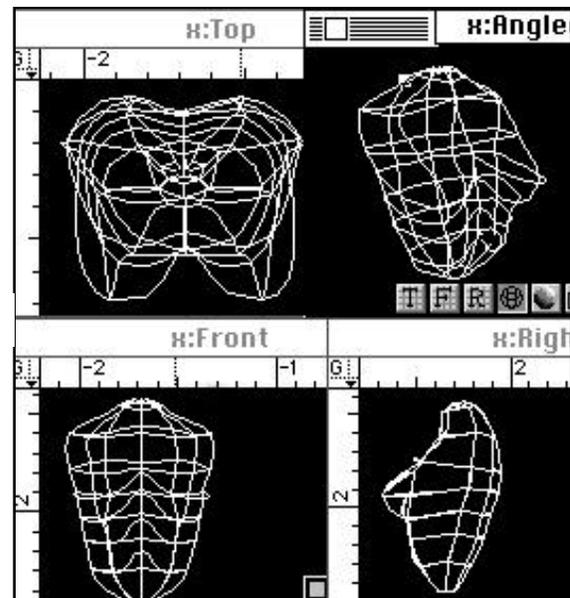


Illustration 13 - The finished lofted and reshaped chest

29. Rename the Loft Mesh so it's called chest and make sure it's inside the \*upr bod./w/chest folder.
30. Check the shaded view of the chest, stomach, pelvis and upper legs to see how well those parts blend together. If the creases where two parts join together, such as the upper legs and stomach, are too pronounced, then reshape the adjoining parts so they fit together more snugly. Sometimes bending the corner splines down where two parts adjoin helps.
31. Set rotation points to the stomach and chest folders. The \*upr bod./w/stomach folder should have a rotation point in the middle and near the top of the pelvis. The \*upr bod./w/chest folder should have a rotation point in the middle and near the bottom of the chest.
32. Test the rotation of the \*upr bod./w/stomach and \*upr bod./w/chest folders and look at the shaded view to make sure that parts don't stick out when the figure is bent in different directions. Reshape sections if you need to get a more natural shape when the parts are rotated. Place the parts back in their original positions when you're done.

## Modeling the left arm

33. Now, it's time to model the left arm.
34. Create a folder for the left arm splines.
35. Draw an ellipse shape for the upper arm. Delete four of the vertices, so you only have 4 in total on the oval.
36. Duplicate, resize, reshape and place all 5 of the upper arm splines like those in *Illustration 14*. Notice the small very top oval and the way it's angled and placed inside the chest model. The top 3 ovals are rotated in the front view at varying angles. If it's going to be a male model, then use bigger ovals.
37. Place the red insertion pointer right under the chest object which is under the open \*upr bod./w/chest folder and create a new folder and call it \*l. arm.
38. Loft all 5 of the upper arm splines and reshape it like the one in *Illustration 15*. Name it L.Upr.Arm.

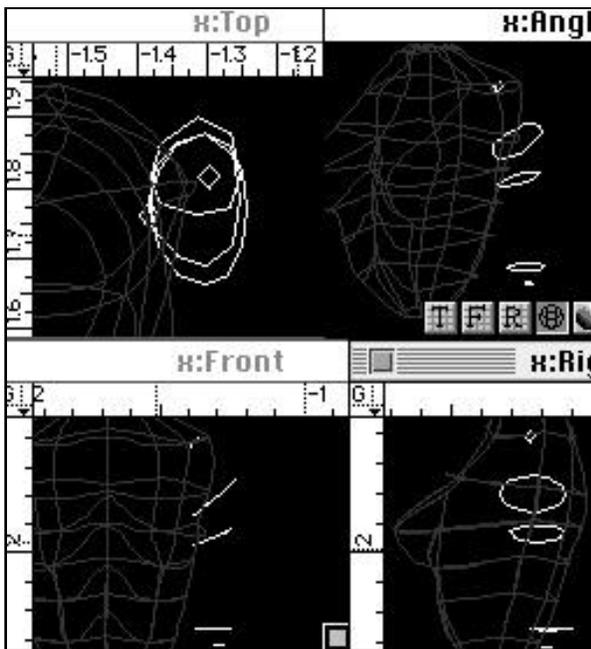


Illustration 14 - The 5 splines for the upper left arm

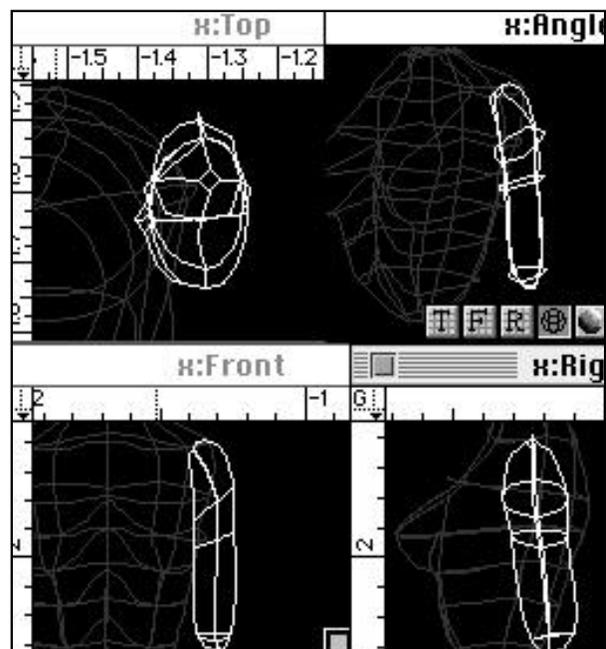


Illustration 15 - The finished lofted and reshaped upper arm

39. Create a new folder that will be inside the \*l. arm folder and call it \*lwr arm.
40. Create a folder for the lower arm splines.
41. Select the second from the bottom upper arm spline and duplicate it. This will be the second from the top spline for the lower arm. Its the point where the lower arm and upper arm will meet.

42. Duplicate that spline so that you have 6 splines in total. Reshape, resize and place them like the ones in *Illustration 16*.

43. Move the red insertion pointer right under the \*lwr arm folder.

44. Loft the 6 lower arm splines and reshape the lower arm so it looks somewhat like the one in *Illustration 17*. Rename the Loft Mesh Lwr arm.

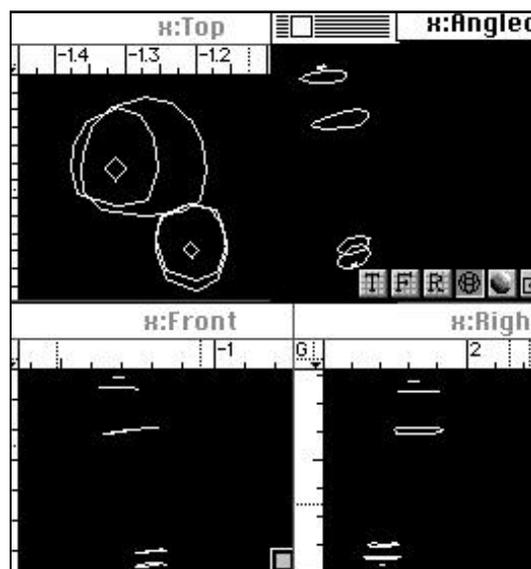


Illustration 16 - The 6 splines for the lower left arm.

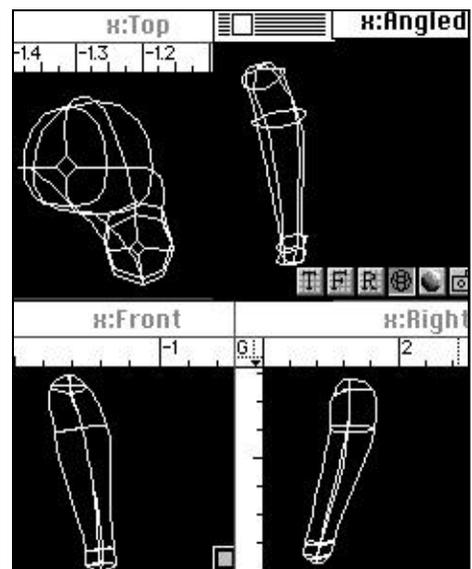


Illustration 17 -The finished lofted and reshaped lower arm.

45. Check the lower arm with the upper arm to see how well they join together. See *Illustration 18*.
46. Put rotation points on the left arm and the lower arm folders. The rotation point for the \*l arm folder goes at the tip of the upper arm which is partially inside the chest. The rotation point for the \*lwr arm folder goes near the top of the lower arm which is partially inside the upper arm.
47. Rotate the entire left arm and the lower arm to check if parts are sticking out. Reshape them if you have to in order to make the bend of the arm normal looking. Place the arm back in its original position when you're done.

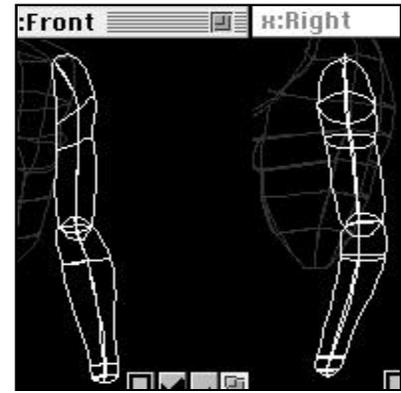


Illustration 18 - The finished lofted and reshaped upper and lower arm

### Creating the hand and fingers

48. The next step is to create the hand and the fingers.
49. Create a new folder to hold the hand splines.
50. Duplicate the next to bottom spline of the lower arm. This will serve as the spline of the hand where it meets the lower arm.
51. Duplicate the hand splines until you have 6 splines in total.
52. Reshape, resize and place them like the ones in *Illustration 19*.
53. Notice the last spline at the bottom, it's the same length from front to back as the one it's inside of but is real narrow in its left to right width. You can see this long narrow spline in the Top and Angled views of the illustration After you loft the splines you will close up that part so that the hand looks solid between the fingers.
54. Make sure the \*lwr arm folder is open and place the red insertion pointer right under the Lwr arm object.

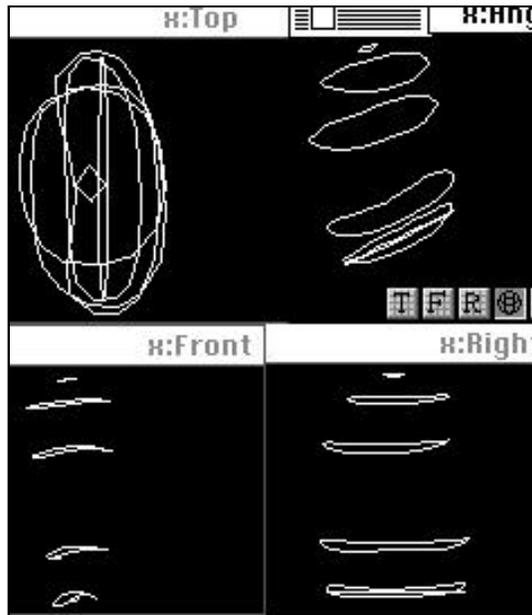


Illustration 19 - The 6 splines for the left hand.

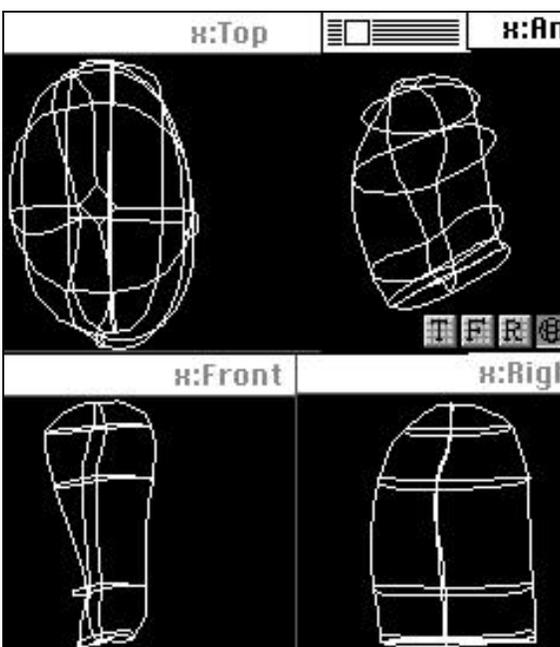


Illustration 20 - The finished lofted and reshaped left hand

55. Loft the hand splines, reshape them like those in *Illustration 20* and rename the Loft Mesh hand.
56. Close up the bottom of the hand like that in the top and angled views of the illustration.
57. Put a rotation point on the \*hand folder and check the shaded view to see how well the lower arm and hand meet in different positions. Rotate the hand back in its original position.

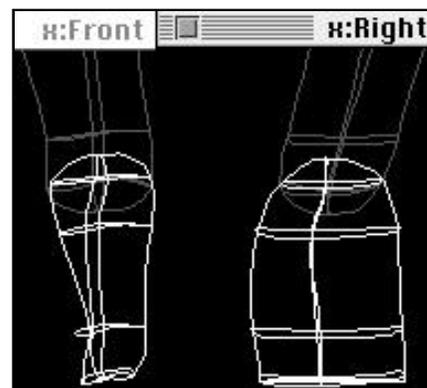


Illustration 21 - The finished lofted and reshaped lower arm and hand.

## Designing the thumb

58. The thumb is made up of three joints starting with the fleshy close one next to and inside the hand.
59. You will need to create a thumb folder that holds the three thumb sections. Make sure the hand folder is open and place the red insertion folder under the hand object. Make a folder and call it \*thumb.
60. Create a folder for all the thumb splines.
61. Use the oval tool to draw a spline.
62. Remove 4 vertices so the oval only has 4.
63. Duplicate the spline and resize, reshape and place all 12 splines the same way as those in *Illustration 22*.
64. You should now have all the splines to create the 3 separate joints of the thumb.
65. Place the red insertion pointer right underneath the open \*thumb folder.
66. Loft the 5 splines for the fleshy part of the thumb. Close up the ends. Check *Illustration 23* to see how your lofted thumb section compares to it. Rename the Loft Mesh upr thumb.

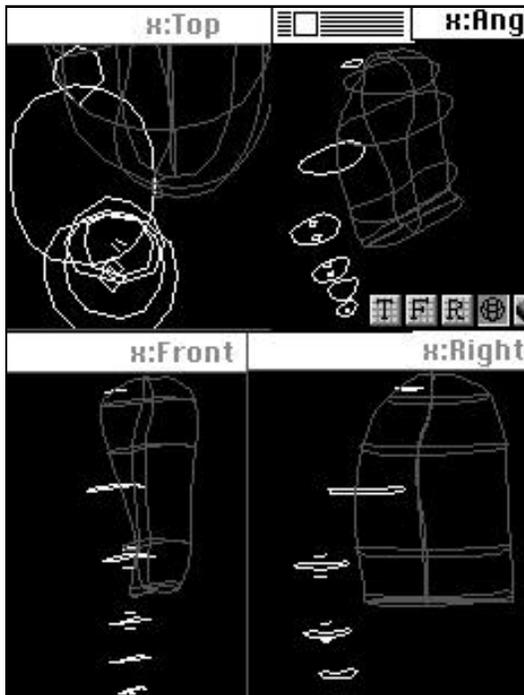


Illustration 22 - The 12 splines for the thumb and its three joints.

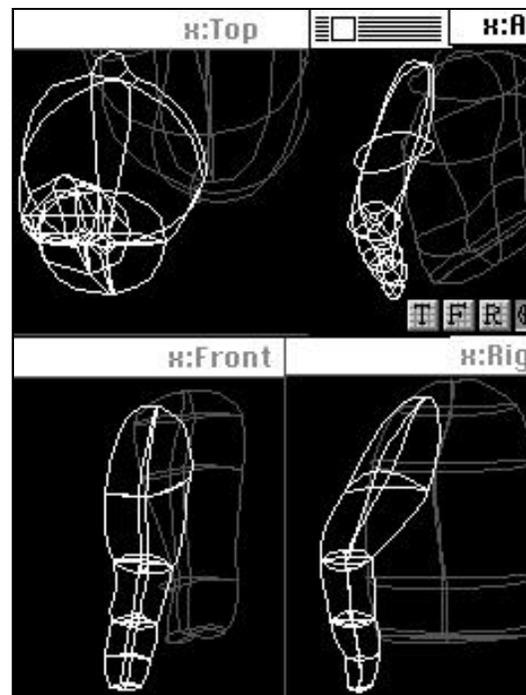


Illustration 23 - The finished lofted and reshaped thumb and the three moveable joints

67. Create a new folder for the bottom half of the thumb and call it \*lwr thumb
68. Loft the second section of the thumb.
69. Close up the ends and reshape the second (middle) section of the thumb and rename it lwr thumb.
70. Loft the thumb tip, close up the ends and reshape it, so it looks somewhat like the thumb tip in *Illustration 22*. Rename the Loft Mesh \*thumb tip. The thumb tip has an asterisk because it has its own rotation point since it's the last object in the thumb folder.
71. Set rotation points for the following folders and object: \*thumb folder, \*lwr thumb folder and \*thumb tip.
72. Check the shaded view to see how the thumb and hand look in different positions when you rotate various thumb sections. Put the thumb back in its original position.

## Modeling the fingers

73. For the fingers, you only need to make splines for one of them. After you finish lofting the different parts of the finger, then you can duplicate that finger folder 3 times and resize them.
74. See Illustration 7 on how to arrange your finger folders and objects in the Groups palette.
75. See Illustrations 24, 25 and 26 to see the splines for the different finger joints, the finished lofted finger and the final hand.

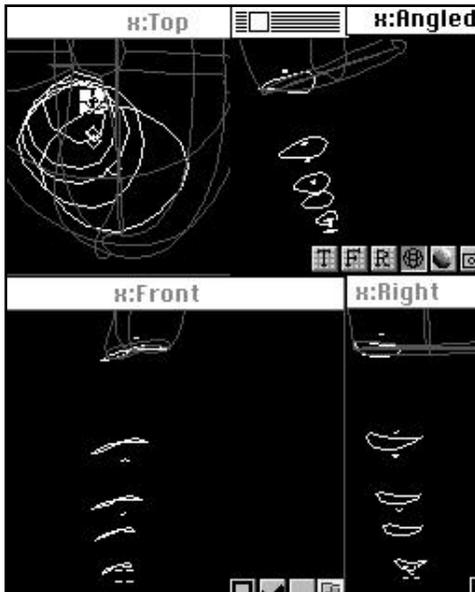


Illustration 24 - The 10 splines for the finger and it's three joints.

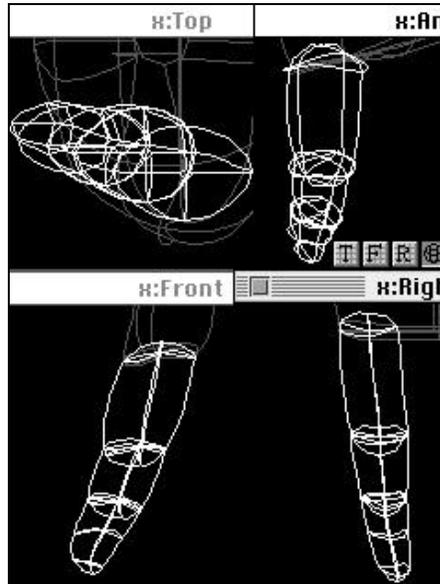


Illustration 25 - The finished lofted and reshaped finger and the three moveable joints.

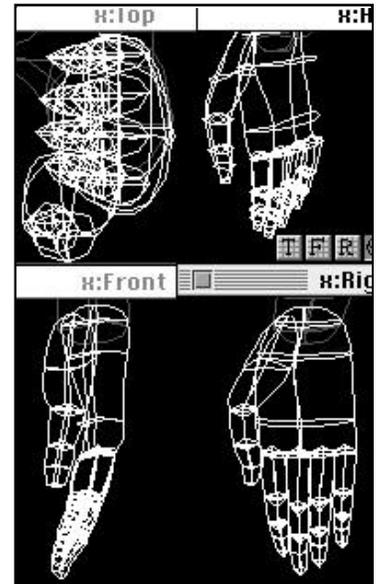


Illustration 26 - The final hand, fingers and thumb

76. Check the shaded view in the Angled window to see how the entire arm looks. See Illustration 27.

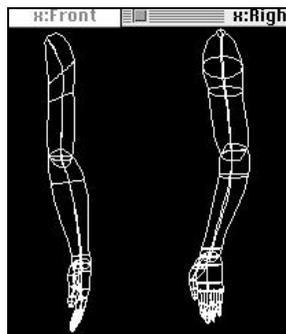


Illustration 27 - The final arm and hand

## Creating the right arm

77. To create the right arm, all you need to do is select the entire left arm folder, duplicate it, flip it horizontally and place it on the right side of the chest in the front view. See steps 81 - 86 in exercise 1.
78. The final step is to assign rotation points to all folders and objects that have an asterisk \* in front of them.
79. You should now have a completed headless body.

## Modeling the neck

80. Before you start the head, you need to model the neck.
81. Close all the arm folders. The left and right arms should be located in the \*upr bod./w/chest folder.
82. Make sure the \*upr bod./w/chest folder is open and place the red insertion pointer right underneath it.
83. Create a folder titled \*Head & Neck
84. Create a neck spline folder and duplicate the next to the top chest spline. Make 3 duplicates of it and resize, reshape and place them so that when lofted your neck will look like that in Illustration 28. Notice the white spline in the illustration - it's the duplicate of the second to the top chest spline.
85. Rename the Loft Mesh - neck and make sure it's in the \*Head & Neck folder.

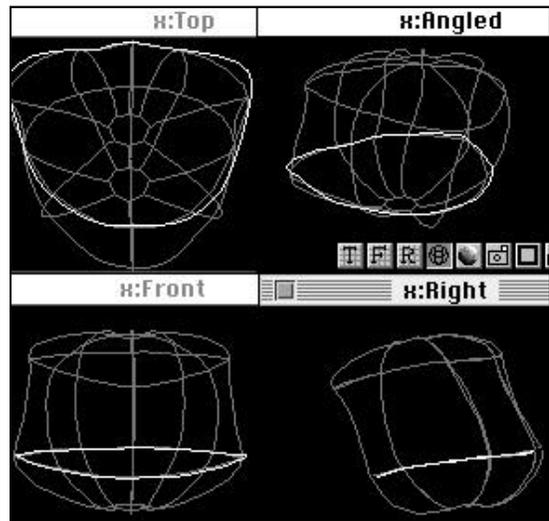


Illustration 28 - The finished lofted and reshaped neck with the original vertices that was duplicated from the chest in white..

## Modeling a Head without a Moveable Jaw

This isn't a talking head. Those of you who are more adventurous and willing to work harder to make a head that has lips that open and close, will need to read through this section, but then move to the next section which explains how to model the jaw separately from the upper head.

1. Place the red insertion pointer right below the open \*Head & Neck folder.
2. Create a new folder and title it \*Head. Make another folder for all the head splines.
3. Look at Illustration 29 which shows how to make a nose spline. That splines shows how many vertices you will need for each of the head splines. Most of the vertices are located near the front because that's where the facial details are located. For the tip of the nose the front vertices is pulled out more.
4. Illustration 30 shows the placement of all the splines. You should be able to make out the general shape of the head from those.
5. Once you've created the first head spline and have deleted and added vertices like those in Illustration 29, then duplicate, resize, reshape and place all the vertices like those in Illustration 30. Each of the face splines should have the same amount of vertices located in similar areas to avoid problems with lofting.

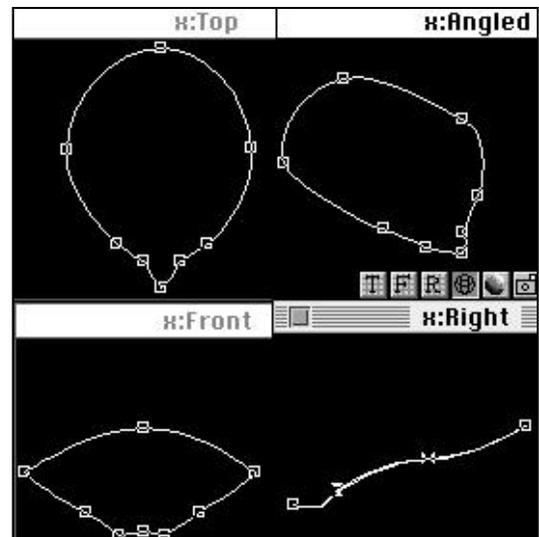


Illustration 29 - The nose spline. Notice the total amount of vertices and the way they are distributed.

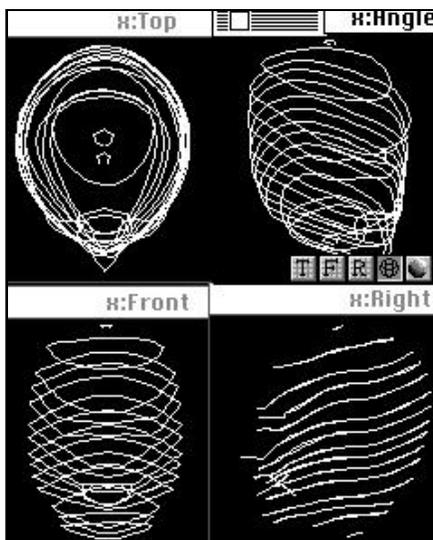
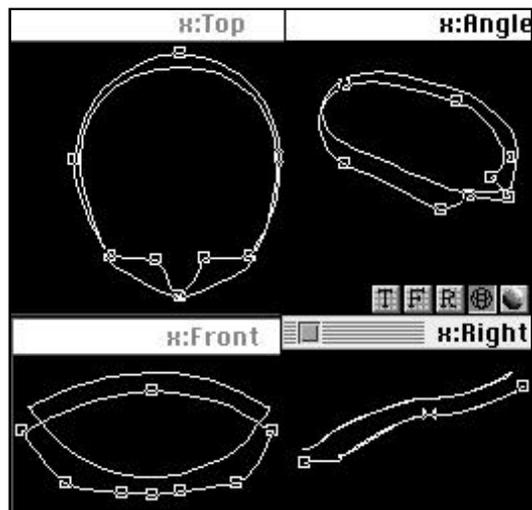


Illustration 30 - All the face splines

6. One thing that really helps shape the face is to loft sections as you create splines for them such as around the lips. Check the lofted section in the shaded angled view. Then, reshape the loft mesh and reshape the original splines and the location of their vertices to match the lofted section. Use the guides to place vertices in their correct positions. You obtain the guides by dragging to the right or down from the rulers. Once you've reshaped the splines to fit the loft mesh, you can delete the trial section of lofted mesh and continue duplicating, placing and shaping the head splines. As you move to another section, loft that part reshape the loft mesh and then reshape the original splines to fit that loft mesh. Continue this process until all parts of the head have a spline like those in *Illustration 30*.

- Notice Illustration 31. The bottom spline has two front vertices that are pulled back. The top view shows how those two vertices will form the eye cavity.

Illustration 31 - The eye (selected with vertices showing) and the forehead spline. Notice the two front vertices in the top view that are further back to form the eye cavity.



- The hardest area of the face to model is around the corner of the lips. It's very difficult not to get creases, since that's the area that 3 splines that form the upper, middle and bottom sections of the lips converge. See Illustration 32.
- Loft all the face splines and rename the Loft Mesh - face.
- If you need to, reshape the final face loft mesh.
- At first, you might get confused with all the vertices and not know where to find sections of the face. There is a method available that you should find really useful. By clicking on a spline until its control points are visible and then going to the color square and picking a different color, you will see that only that spline has that color and this makes it easier to pick out from all the rest.
- If you want to add more detail to the face, you can add vertices with the +pen tool, located as the 4th one down on the right side of the tool palette.

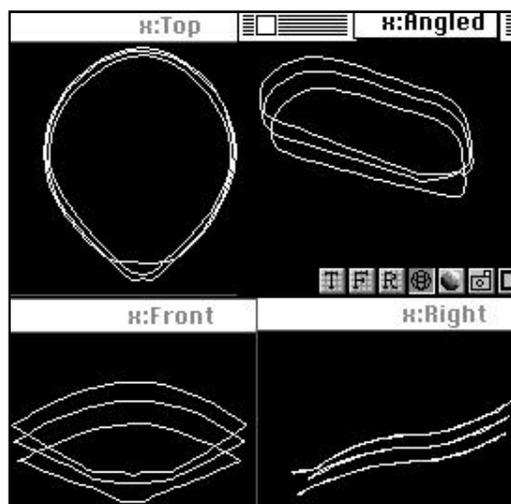


Illustration 32 - Three lip splines. These are the splines that form the base on which the lips are modeled. The front part of the middle spline is set further back (see top & side views). It's the part where the upper and lower lips meet.

## Modeling the lips

- To make the lips that go over the lip shape of the face, you need to go back to the original 3 lip splines and cut them so that only front parts are left. See *Illustration 33*.
- Loft the 3 cut lip splines and reshape them by pulling the control points of the first 3 vertices forward in the right view. This will give the lips a curved look and make them stick out in front of the face mesh. Don't move the bottom and top parts of the lips, because that's where they join to the face. See *Illustration 34*.

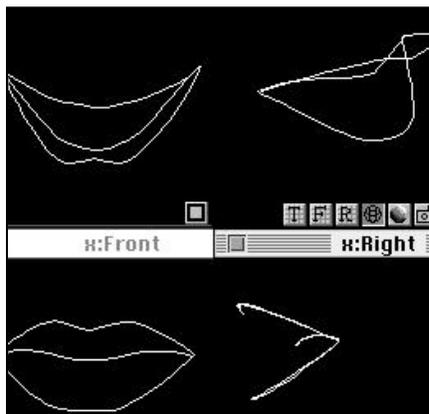


Illustration 33 - The three cut lip splines which will form the upper and lower parts of the lip.

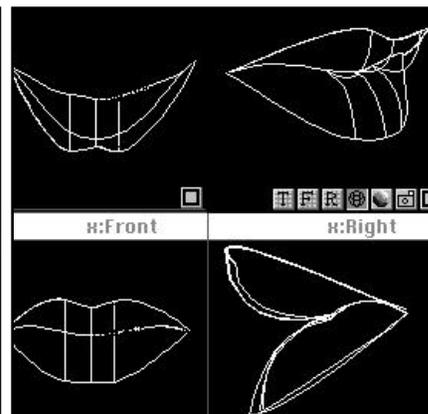


Illustration 34 - Lofted and reshaped lips

## Creating the eye

15. The following illustrations - #35-41 show how to make the eye and eye lids.

16. Before modeling the different parts of the eye, create a folder and name it - right eye things. Inside that folder create another folder and call it - \*r. eye. Inside the \*r. eye folder place your different parts of the eye:

1) Cornea - it's clear and goes over the front half of the eyeball (retina). Assign a transparent shader like glass to the cornea.

2) Retina - the white part of the eye. Assign it a shiny shader like plastic or shiny metal with an environment map.

3) Iris - This fits over the front of the retina and is the colored part of the eye. Assign a shader with a pattern such as blue marble to it.

4) Pupil - It fits on top of the iris and is colored black. Assign it a shiny shader such as plastic or shiny metal with an environment map.

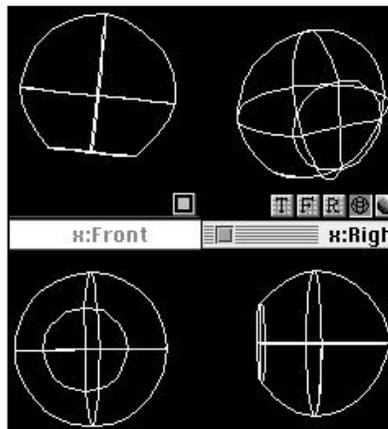


Illustration 36 - The retina

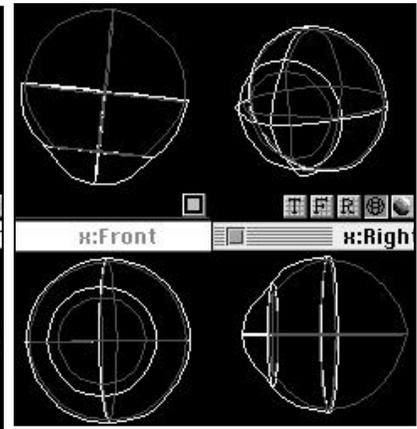


Illustration 38 - The cornea is in white. The retina is in gray

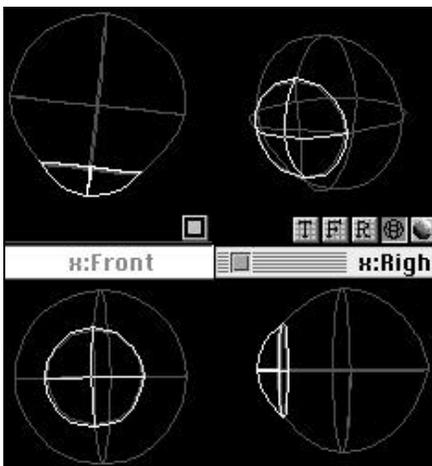


Illustration 37 - The iris is in white. The retina is in gray

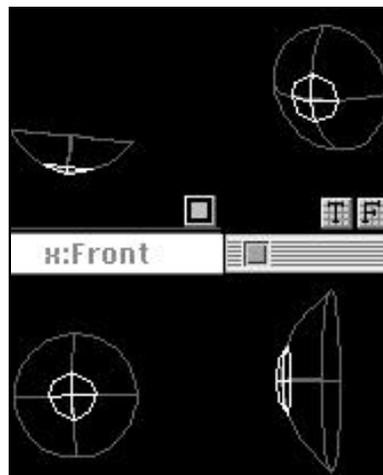


Illustration 39 - The pupil is in white. The iris is in gray

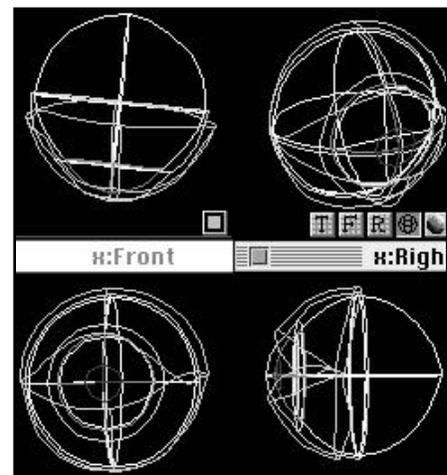


Illustration 35 - The total eye and eye lids

17. Close the \*r. eye folder and inside the right eye things folder create a folder called - r. eye lids. Inside that folder you will have two models of the eye lids called - \*top eye lid and \*bottom eye lid. See Illustration 40.

18. Each of the eye lid models will share the same rotation point located in the center between the two. This will make it possible for your eye to blink. The eye lids should cover and fit snugly over the entire eye.

19. The \*r. eye folder has a rotation point assigned to its object center so that you can rotate the entire eye and its contents.

20. All the eye parts are modeled using ovals (press E on the keyboard) and the eye lids are modeled using single splines (press B on the keyboard).

21. Illustration 6 shows the order and location of the eye parts and eye lids.

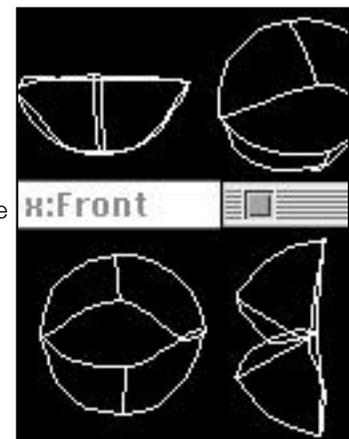


Illustration 40 - Eye lids

## Modeling the ear

22. When modeling the ear use single splines (press B on the keyboard).
23. The ends of all the splines should be far back so that when lofted the ear can be set partly inside the head.
24. It helps to look at your own or someone else's ear while drawing your splines. The ear's unique shape makes it necessary to have splines that curve in and out and criss-cross each other in the top and right views. See *Illustration 41*.
25. After lofting the various ear splines, you'll most likely have to do a bit of reshaping. See *Illustration 42*.



Illustration 41 - The ear splines

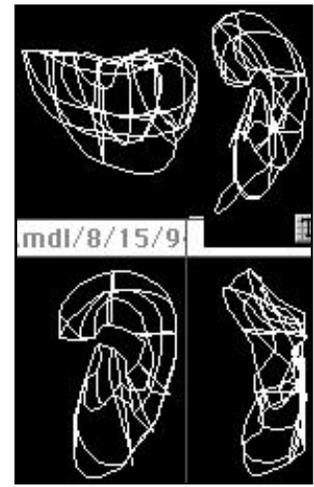


Illustration 42 - Ear

## Designing the hair

26. The hair is modeled using the ellipse tool (press E on the keyboard). Place a series of ovals starting with a small one at the top of the head, which will be closed later, another one around the forehead and on down depending on the length and style of the hair. Reshape the splines so they go around the face. Loft the splines and pull the front of the bottom one up to the forehead to expose the face. See *Illustration 43*.
27. The eyebrows are made up of two lofted single splines using the spline tool (press B on the keyboard). You can assign a rotation point to the center of your eyebrows, so that your model can have more facial expressions.
28. If you plan to use a displacement shader such as cloth for the hair and eyebrows, then you might need to make duplicates of each so that you can assign a surface shader to one and the displacement shader to the other. The reason for doing this is that if there are any gaps created by the displacement shader, the underlying duplicate model and its surface shader will prevent the skin from showing through.
29. See *Illustration 6* to see where the hair and eyebrows are placed in the Groups palette.
30. See *Illustration 44* to check out the final result of the entire head and its various parts.

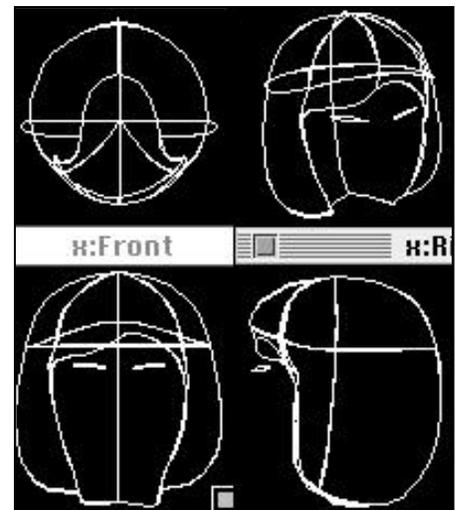


Illustration 43 - Hair and eyebrows

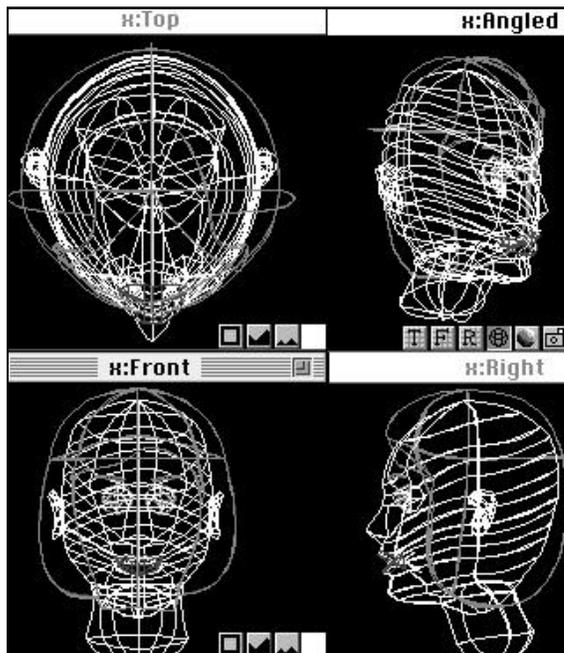


Illustration 44 - The finished head - no moveable jaw

## Modeling a Talking Head with a Moveable Jaw

If you're reading this part and are willing to try modeling a head that can talk and change expressions, you deserve a handshake and a tip of the hat for your artistic ambition. So, here goes.

1. Instead of lofting all of the face splines, you loft the upper face splines separately from the lower face (jaw) splines. This makes it possible to rotate the jaw separately from the upper portion thus opening and closing the mouth.
2. Look at Illustration 45 and you'll notice that the upper lip is not a part of the jaw - only the lower lip. The upper lip stays with the upper face. The top view of the illustration shows a spline that has the front part of it going back. You can also see it in the side view next to the lower lip. That's the part of the jaw that goes in and forms the mouth cavity. You model the inside mouth surface over this part.
3. Now, look at Illustration 46 and you'll see 3 splines. The white ones are shaped so that the front sections go into the face to form the inside of the mouth.
4. In order to avoid getting gaps when the mouth opens you will need to overlap the jaw and the upper face. You can do that by duplicating each of their splines around the mouth area. For example: the second from the top spline that might be part of the jaw could also be used to form the second from the bottom spline of the upper part of the face. In fact, that would probably work best as the spline where the upper and lower lips split.
5. Set a rotation point in the middle of the jaw.

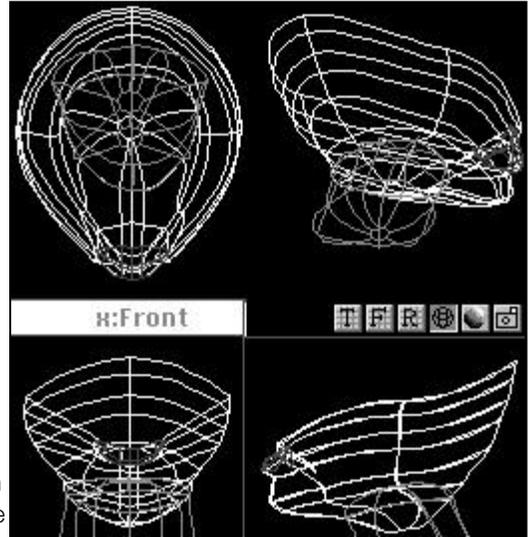


Illustration 45 - Modeling the jaw separately from the upper part of the head. Notice that only the lower lip is part of the jaw.

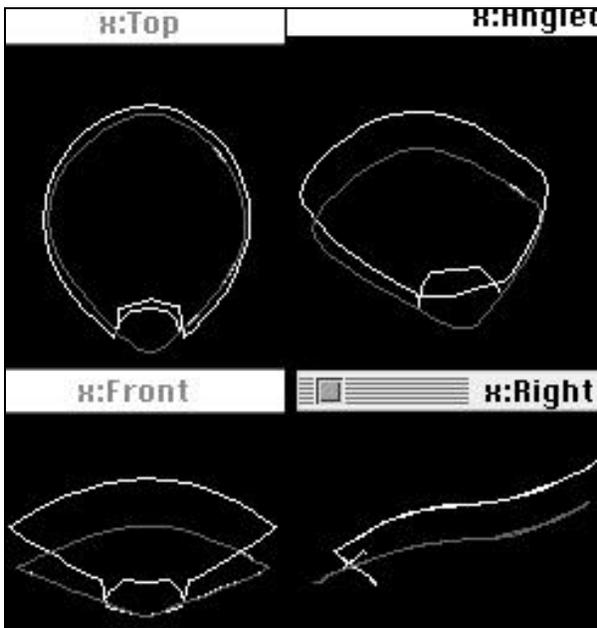


Illustration 46 - 3 splines around the mouth area. The bottom 2 splines overlap because the white one that goes back forms the mouth cavity and the gray one is part of the upper face where the lips meet. The top white spline is for the upper lip that's connected to the upper face. It goes back to form the top part of the mouth cavity.

6. See Illustration 47. It shows the jaw rotated minus 7° for the right view. In Presenter, you would rotate it minus 7° for Rotation: in the x box.
7. When the mouth opens, you'll want to show teeth, the inside of the mouth and maybe even a tongue.
8. Illustration 48 shows the top set of teeth.

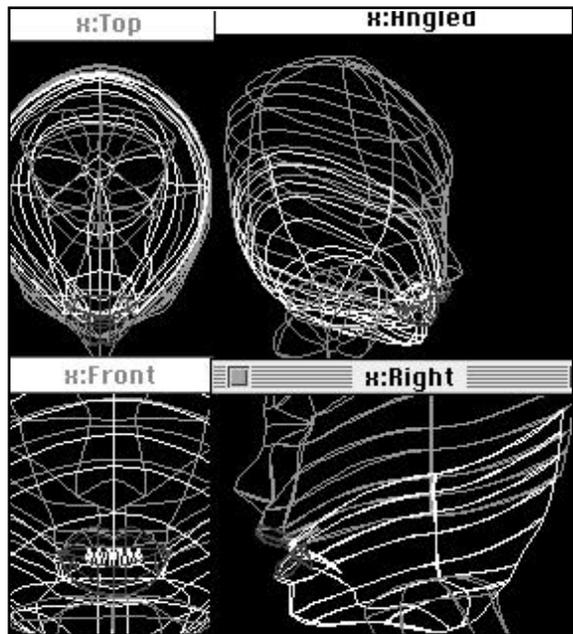


Illustration 47 -The jaw rotated in order to open the mouth

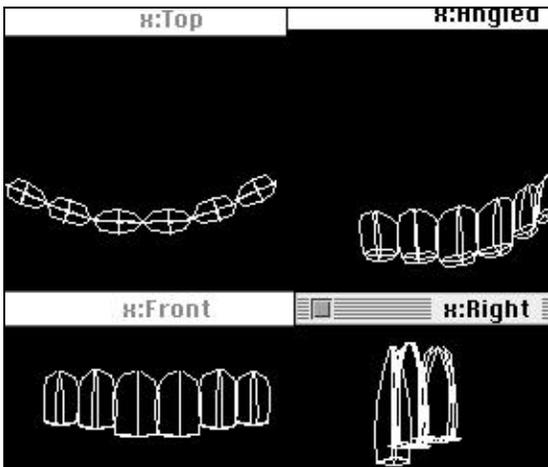


Illustration 48 - The top set of teeth

9. Illustration 49 shows two rendered versions of a model with the mouth closed and open.



Illustration 49 - An angry young model

## Modeling Clothes

Now that you have your model, you can dress her in the latest fashions. Be sure to put each clothing article in the folder that contains the body part that it's covering. This will insure that when you animate that body part, the clothes will follow. For example, if you put a sleeve on the upper arm, then it would be placed in the entire arm folder right after the upper arm part. Modeling the clothes requires the same lofting procedures used for the body. You can use either open or closed splines. See Illustration 1 for an example of a swimsuit.

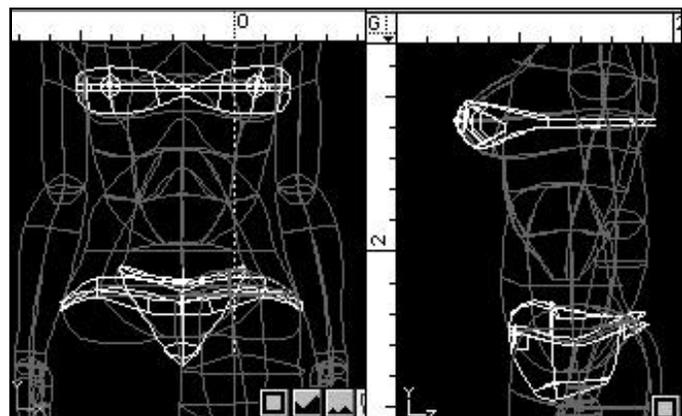
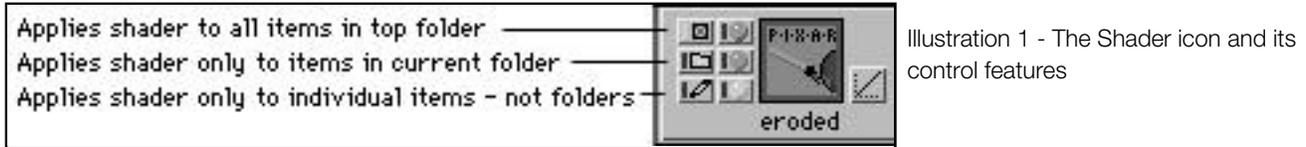


Illustration 1 - The swimsuit

## Working with RenderMan Shaders

1. In the Script window, double click on the folder or object name that you wish to apply a shader to in order to get its Info Dialogue box. Go to the Windows menu and select Attributes.
2. Select Shaders from the pop-up menu at the top of the Attributes box and scroll down to find the right shader. Drag the shader icon to the bottom rectangle of the Info Dialogue box. To delete a shader, drag it to the top of the screen.
3. Double click the shader icon to change the shader's settings. See Illustration 1 for an explanation of the 6 little icons to the left of the shader icon.



4. In the Render Control Palette at the top, for Render Type (to the right of the camera) use the same settings as in Illustration 2 - RenderMan. Underneath for Default Settings click to get the RenderMan dialogue box. For Image Size: pick 640x480 (8.8 in.x6.6 in.) for the final rendering size.

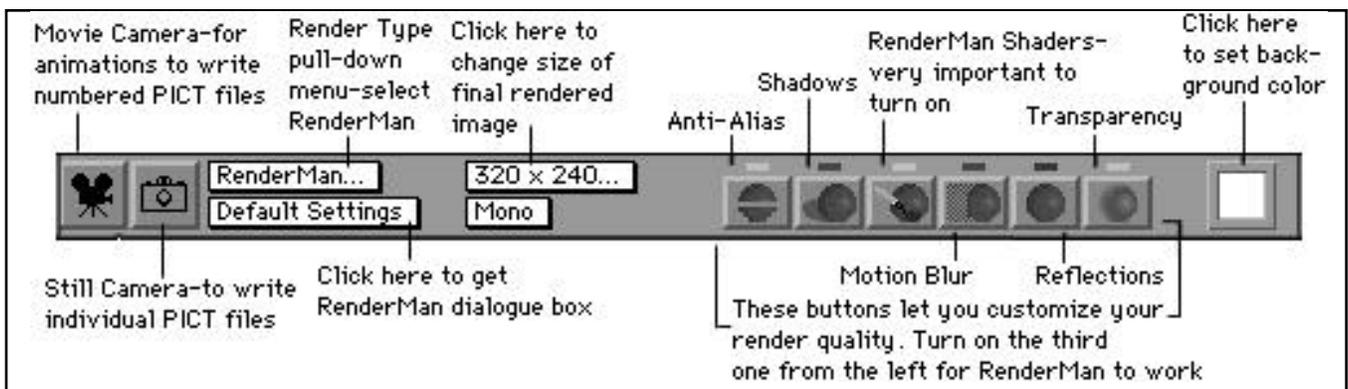


Illustration 2 The Render Control Palette

5. Click on the Default Settings button. See Illustrations 3,4, and 5 for the correct RenderMan settings.
6. After clicking on the word RenderMan on top, (next to the camera button)-see Illustration 2, click in the box next to Write RIB Only to put an X in it, set RIB Encoding: to Binary. Click Rman Setup... for more settings. See Illustration 3.
7. After clicking on the RMan Setup... button in the Renderman Renderers Settings... dialogue box (Illustration 3) you will get the PhotoRealistic RenderMan dialogue box. If you don't get PhotoRealistic RenderMan, then go to Chooser and select it.

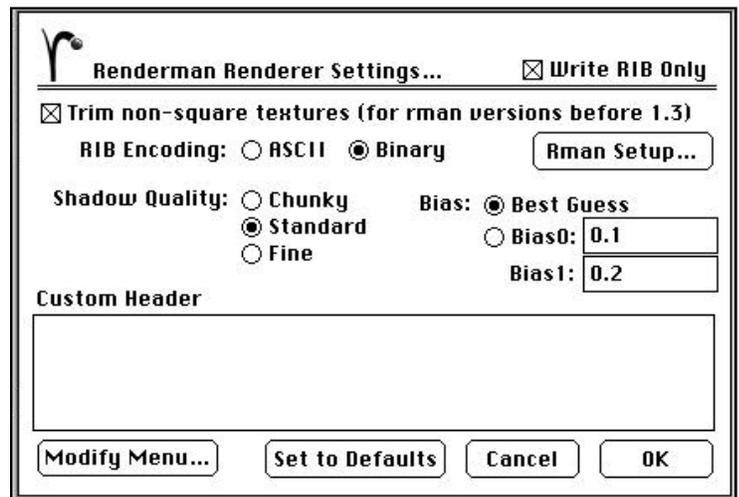


Illustration 3 - The RenderMan Parameters Dialogue Window

8. In the PhotoRealistic RenderMan dialogue box set your Sampling and Default Shading Rate to the numbers indicated in Illustration 4.
9. Click on the Esoterica... button.
10. In the PhotoRealistic RenderMan Esoterica box make sure the settings are exactly the same as those in Illustration 5. Click OK.

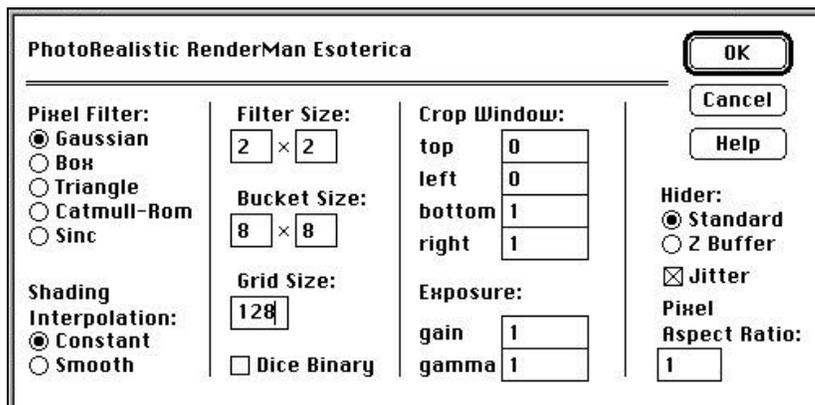
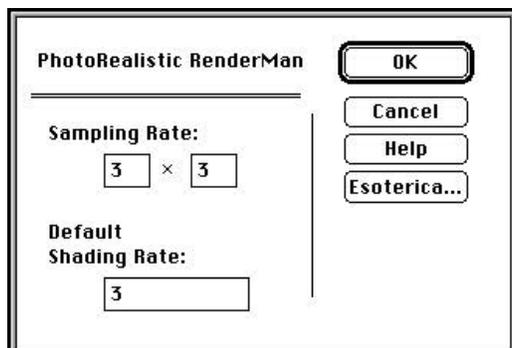
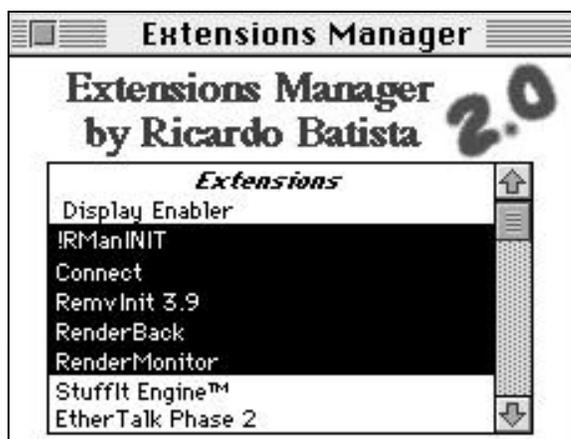


Illustration 4 - The RMan Setup Dialogue Window      Illustration 5 - The PhotoRealistic RenderMan Esoterica Dialogue Box

11. Click the camera icon in the Render Control Palette to render one frame.
12. Click the movie camera icon for numbered animation PICT files.
13. After your image is saved, you must quit Presenter and go to the apple icon at the top of the Mac screen, scroll down to Control Panels, look for the Extensions Mgr. icon and double click it. Click on the button that says All Off. Click on IRManINIT, Connect, Remvlnit, RenderBack and RenderMonitor to highlight them. This will turn off all utilities (to give you extra rendering memory), Only the extensions you highlighted will remain on.
14. You must now restart the computer to make your Extension Mgr. changes go into effect.



15. Under the Apple Icon scroll down to Render Spool or if it's not there, go to the hard drive and look for the system folder; open the folder and look for the Render Spool folder, open it and drag your RIB files into it. This will automatically start the Render Monitor.
16. To get the render monitor to show up, click on the computer icon at the top right hand corner of your screen and pick Hide Finder. Render Monitor should now show up at the front of your screen.
17. Your image should start rendering fine. If you notice an error message in the dialogue box such as "memory allocated but not used" then something is wrong.
18. Since you turned off the screen saver with Extensions Mgr., you will need to turn off the monitor to prevent screen burn out. Put a sign on your computer that says it's rendering, so that people won't disturb it.
19. After it's done rendering, your image should appear on the desktop as a PICT file. To view it, open Photoshop or double click on it.
20. After you're done rendering, be sure to go to the Extensions Manager and press the button that says All On. This will insure that the next person that uses the computer will be able to use all the programs, plus insure virus protection and turn the screen saver on.
21. Restart the computer for Extensions Mgr. to go into effect.