Funky Tools

Some of the tools you may have missed**

** This tutorial is intended to graphically demonstrate some of the specialty tools available in Lightwave. It is written under the assumption that the reader is familiar with the layout and use of the Lightwave modeler program. It is not intended to give step by step instructions on how to recreate all of the examples. Instead I hope to broadly encapsulate the uses of several tools that are often overlooked. This tutorial’s claims are not evaluated by the FDA and the writer assumes no responsibility in case of accidental ingestion.
The Tools that I wish to gloss over are:

- The Wedge
- The Seashell
- The Super quadratic
- The Gemstone
- Plot2d, Plot3d
The Wedge Tool (in its default state)

- The wedge tool is the easy* way to get a section of a disk.
- On the next page is a cheesy example of what you can do with it.
- A more practical example is an arched doorway with a capstone.

*The hard way is to create two concentric disks of desired thickness, Boolean subtracting them to create a ring and then using two carefully angled boxes in a different layer to Boolean subtract a wedge shape from the ring. Whew!
The Wedge Tool *(Fromage)*

- Create a simple wedge
- Add some differently sized rods using the disk tool in a new layer
- Move them around and then use Boolean subtract
The Wedge Tool (Arched Doorway)

- Create a 180 degree wedge similar specs to above
- Add a box to one side of the arch. Then use the mirror tool to copy the box. This creates the door posts
- Add a capstone with the wedge tool
The Seashell Tool

- The seashell tool takes an object and "spins" it around an axis. It can be used to take simple shapes and turn them into complex spirals.
- This causes the poly count to increase so quickly it may sometimes crash Lightwave. I would suggest using very simple shapes (planar) when using this tool.
- This is very useful in making seashells.*
- A slightly more practical use is to make spiral paths for other tools. Many other objects in nature consist of spirals, and seashell can be used to create them.

*yes, I have a firm grasp of the obvious
The Seashell Tool  (a simple example)

- Create a gear using the plug-in from Lightwave. Make sure that the gears has no thickness (this just adds more polygons inside the model).
- Use the seashell tool to create five turns.
- Viola! You now have a 20,000 polygon model!
The Seashell Tool
Creating Spiral Paths (part 1)

- Create a 2-point poly in the top view (XZ plane). To do this, use the numeric keypad “+” symbol to create a point above and to the right of the origin. Next create another point directly below the first. Then go into point selection mode and select both points. Use the “p” (note case) button to make a polygon out of the two points.

- Next tab over to the multiply menu. Select seashell and then hit the “n” key to get its numeric settings. Use similar settings as those on the right to start with. Now is also a good time to play with the settings to see what they do. Notice that the Shift per Loop setting adjusts how “stretched” the coils are and that the Scale per Loop adjust how tightly the spiral is wound.

- Now move into point selection mode. Using the right mouse button draw a lasso around all the points at the bottom of the spiral. Copy these points with the “c” button. (see example on next slide)
The Seashell Tool
Creating Spiral Paths (part 2)

- Paste these points into a new layer with “v”
- Now reselect the points using shift + the ` key
- Hold down CTRL and hit “p” to make a spline curve of the points.
- At this point you should have a spline spiral
- Rail away and have fun 😊
The Gemstone Tool

- This tool creates shapes that look like cut gems. Not the most versatile tool in Lightwave, it does have its uses.
- It can be used to make An Easy Pedestal
- Given a little tweaking the gemstone can be used to make reasonable looking Teeth
The Gemstone Tool (An Easy Pedestal)

- Create a gemstone
- Adjust the setting using the numeric panel to those found below.
- Plagiarize an object of your choice to display on the pedestal
The Gemstone Tool (Easy Teeth)

- Create some long gems using gemstone tool
- Use the Triple tool to allow for sub-patching
- Use subdivide using the meta-form option
- Turn on sub-patching
- Use shear and twist to adjust the final shape of your teeth
**Plot2d, Plot3d**

- These tools can plot a wide variety of mathematical functions.
- Plot2d can create an exact path for rail extrude, etc.
- Plot3d creates a sheet of surface from equations in the x and y plane.
- The function to the right is demonstrated on the next page. Sub-patching was turned on and then the Lightwave default texture “lizard skin” was used.
- Using Plot2d we can make a shape only marginally resembling a Worm.
- A Shower Curtain is another example of the useless objects you can create using Plot3d.
Plot2d, Plot3d (Worm)

- Plot1d with \( \sin(x) \)
- In a new layer create a circle centered on one end of the curve
- Use the curve as guide for rail extrude
- Texture with the “disgusting” preset texture in Lightwave
- Realize with disgust that a spline curve could have done this job easier and with a higher degree of realism
Plot2d, Plot3d (Shower Curtain)

- \( \sin(x) \) plotted with Plot3d
- Use subdivide to create smooth control points
- Turn on sub-patching
Super Quadratic

- This tool might be better named the Homer Simpson tool, all it does is create donuts*
- These donut shapes can be cleverly arranged to make an Easy Chain

*As far as I can tell this tool mainly creates roundish shapes with holes in them, unless you select the elliptical option in the numeric panel, in which case it creates squarish circles. Yes that’s right, square spheres, you will have to play with it to see what I mean.
Super Quadratic (Easy Chain)

- Create a squarish donut
- Copy it into a new layer
- Use rotate and move to create two interlocked links
- Use clone to create as much chain as you need
In conclusion
I would like to review the tools we have seen and rate them.

<table>
<thead>
<tr>
<th>Tool</th>
<th>Uses</th>
<th>Uselessness Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Wedge</td>
<td>Making Cheese!</td>
<td>4</td>
</tr>
<tr>
<td>The Seashell</td>
<td>Making Seashells (duh)</td>
<td>7</td>
</tr>
<tr>
<td>The Gemstone Tool</td>
<td>Bling Bling</td>
<td>10</td>
</tr>
<tr>
<td>Plot2d, Plot3d</td>
<td>Making Paths the Hard Way</td>
<td>9</td>
</tr>
<tr>
<td>Super Quadratic</td>
<td>D’oh!</td>
<td>10</td>
</tr>
</tbody>
</table>