

The Magic of Light Tutorial © Chris Tyler



There are many important qualities to consider when doing 3D art. Textures, bump mapping, composition and modeling, are all very integral to the finished product. But don't under-estimate the importance of light in it's various applications to really make your picture come to life.

Recently, I was working on an idea as I sat in my backyard gazing at my fishpond. I have always been fascinated by the way our eyes are so sophisticated that they can discern between very blended forms, but that they can also be confused by these same forms. In this picture, I substituted glass for water, but the concepts are almost the same. For instance we can at once look at the window and see the surface of the glass, the reflection in the glass, and the subject through the glass. I can't explain all the mathematical formulas for this because I don't understand them; but

I love the way Truespace is able, with some creative manipulation, to render the results in a wonderfully realistic way.

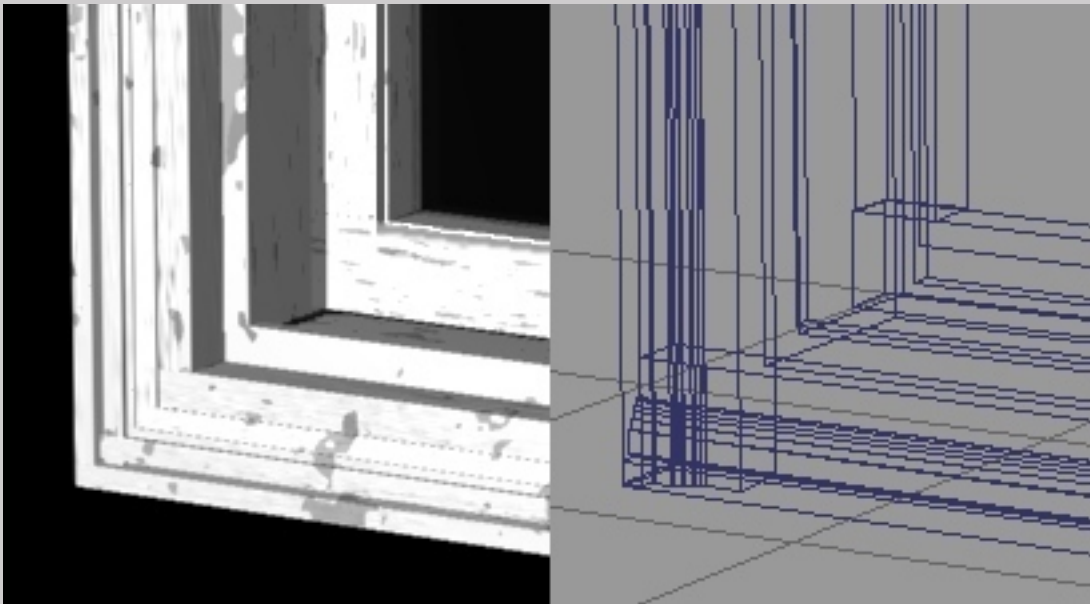
In this tutorial, allow me to share my techniques to get soft shadows, certain effects with light and bump mapping, and reflection and transparency in glass.

Work smarter, not harder.

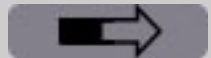
I am not going to get too much into modeling with this tutorial. This picture is really amazingly simple anyway, as you can see. But always try to remember two things in realism...

1. Model what you know.
2. Look for ways to make it as simple as possible.

Here is just an example of what I mean. One of the major features is the window. If you don't make it right, people will notice. If you leave out a stile or runner, folks may not know what is missing, but they will know "something" just isn't right. I was a carpenter for twenty years, I've built countless styles of windows; but you don't have to be a carpenter, just look at your own windows and include all the parts. Don't go crazy though, it doesn't have to be perfect. Being a carpenter, I have a tendency to try and model my objects in Truespace like I would make them in my shop. That's working harder, not smarter.



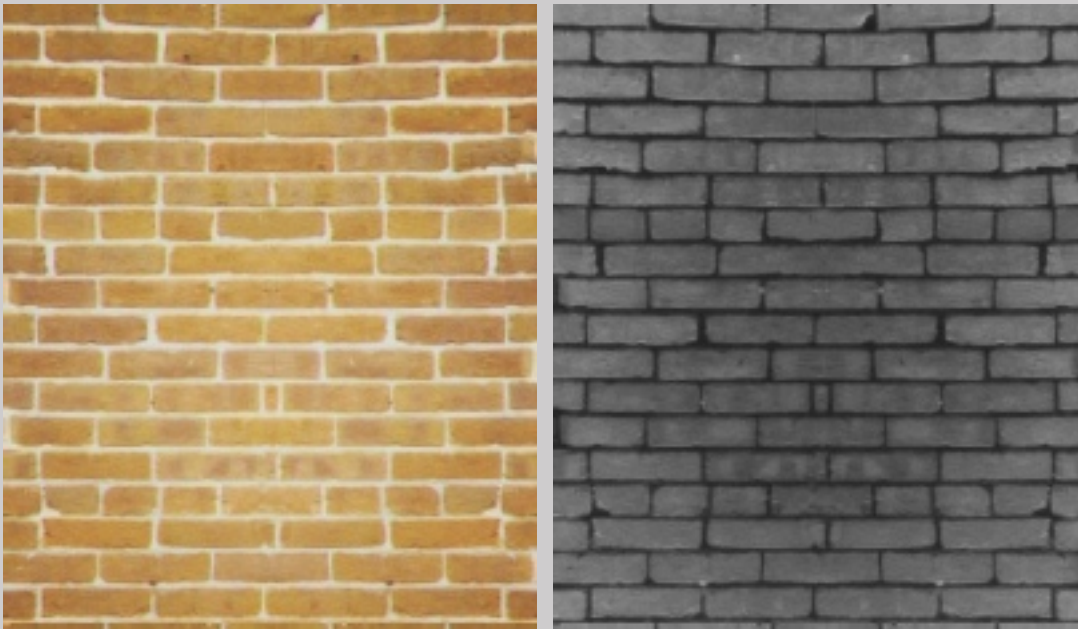
Look at this image of the corner of the brick moulding. I would have a leaning to put a forty-five degree cut and join the corners, so that the textures would look right. But if you have made them all the same size, this will happen in 3D if you just use your numbers in the object info box and match them perfectly. This little technique saves tons of time and looks just fine.



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Textures & Bumps, Setting the stage.

You already have some great tutorials by the wonderful artists above. So I'll just share this simple technique I used in this picture. Quality textures are essential! I have found the larger they are, the better. I personally like them in in TGA format because they carry more detail. Once you have one you like, in this case I used the brick wall of my little church, take note of the direction you want your shadows to go. This is critical to the realism of your picture. By direction, I mean, whether you want certain parts to be high or low. In your bump mapping utility in TS , black will be the lowest point (valley) and white the highest point (mountaintop).

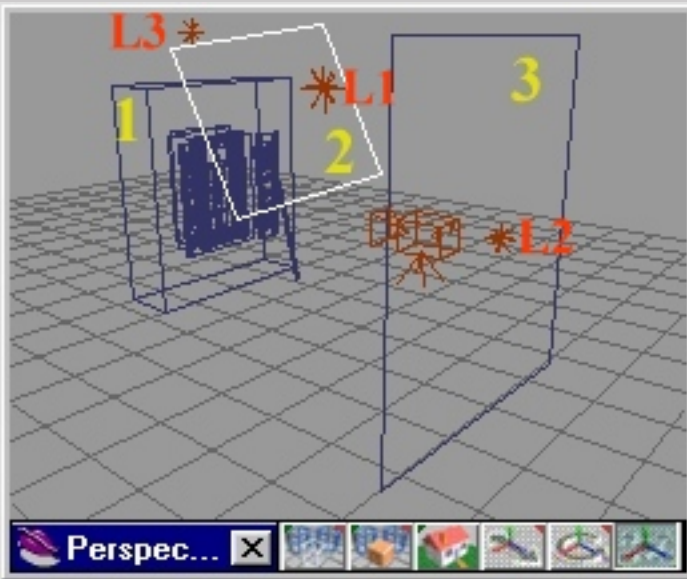


Bricks, for instance, can be either way. The mortar between the bricks can stick out past them or it can be

recessed. There are several ways to accomplish this, including setting negative numbers in your bump mapping utility, but this is the way I like to do it. Take the texture you have, and in a paint program (Paint Shop Pro or Photoshop etc.) make the image a greyscale, then, in this case since the mortar is recessed, make a negative of it. Then jump the color count back up to millions of colors as TS will not process a greyscale image. Now you have a bump map that will match perfectly the texture. Here's another little bit of advice; play with your numbers in every attribute box TS gives you. I love the versatility you have to do almost anything with these controls. As a rule, however, I hardly ever bump an ordinary object much past 0.03 or .04.... .02 being the norm for me. But you try it, have fun!

Let me just add as well, that the peeling paint on the window and shutters was done with procedural granite. (I love proc. granite) Remember to vary your granite numbers and colors slightly and apply it to different pieces of the object to get a varied effect and cut down on the repetition that would make it look like a plastic CG.

Soft Shadows & Reflections



Here is an image that shows just how simple this particular scene really is. Yet each thing in it, is vitally important to the final product. First the easiest to deal with is the reflection of the tree we need in the window. I know many artists in TS like to place the whole scene in a sphere and let that be a full surrounding. There are times this is great; but when you can, make it as simple a process as possible. So, here you see a plane (3). First, expand the plane very large, I have a texture I use as a reference with spaced numbers on it. When I see the reflection in the window of a certain number on the texture, I know where, in the scene, I need to place my final. resized plane.

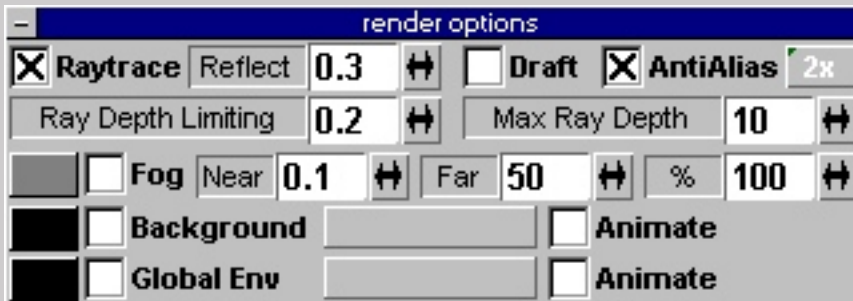


Set the shader property at it's highest setting and set all the others to zero. You will have to play with the UV projection, and note that the back side of the plane will look opposite of the face that will give your reflection. You may also have to move this around to get it in just the right place in the window glass.

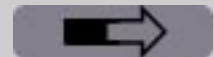


For plane #2 that the shadows will come from you can take this image and in a paint program set the brightness such that the sky is almost completely white, or all one color. Then in TS goto your image utilities and make a TXR file from it. Use the "image"

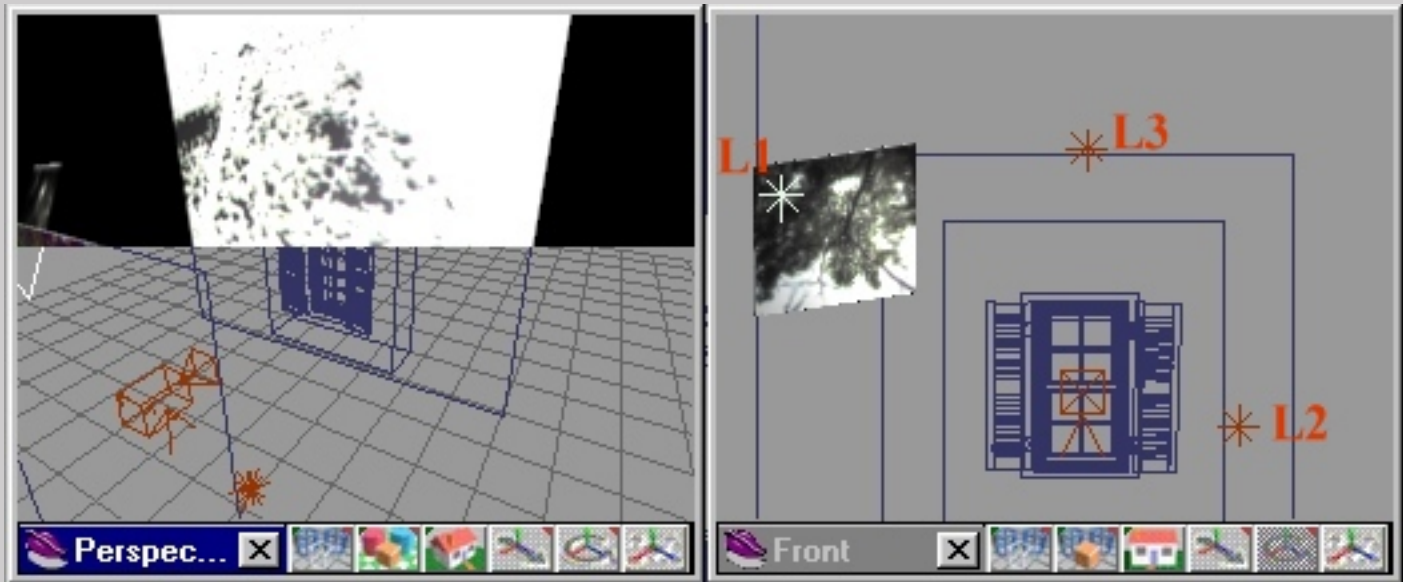
setting. This will keep all the fuzzy edges around the leaves and limbs. This whole deal is fantastic for a lot of special lighting effects. At every step, don't be afraid to experiment!



Now you just need the lights to make the picture. There is only one ray traced light in this scene. (L1) The one that shines through the TXR of the tree and casts shadows on the wall face. This may take some playing. Set the light intensity first around 1.0 and then you will have to move the light and /or the plane to cast the shadows right where you want them. This can give you a big headache and double vision and take a long time in checking each movement in a render even in the smaller view windows. So make another plane, enlarge it pretty big. place it in from of the window/wall. Paint it flat white.



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Next use your best guess and set your light and TXR plane in place and remember to turn ray tracing on.....both your light and in render options, for now leave on the defaults. As you can see in this image, you can now tell where the shadows are and which ways you have to go, in or out, up or down to get them where you want. this can be tweaked later in closeup but this alone will save you much time and frustration.

Set lights L2 and L3 to get the amount of light you want on the tree reflection plane (#3) and also L2 will be used to soften the harshness of raytraced L1. I am not even going to give you all the numbers for these lights because frankly, you can change everything by just moving these numbers even slightly and get whole new and wonderful effects on everything the light falls on.

Note: I hear different lighting preferences from using just a few to using tons of arrays. But your scene itself will dictate the number and settings. There is so much

modification possible with these wonderful tools that the only way to arrive at the perfect lighting for your scene is to just jump in and try things. I like to start with one light, the one that I want the main source to be, and build from there. Don't forget that you can also set a negative number in your light settings to take light out of a situation, like a corner or such. The more ray traced lights, the longer the render and the more shadows to play with (for good or bad). Just don't be afraid to try anything and take your time. It will pay off in the end.

Finally, "Fooling around"

You may be a purist and think that everything in a scene must be fully modeled in 3D to be 3D. I am not going to argue with you. Go ahead and God bless! But then don't be disappointed when the object you put all your time into becomes a relatively minor player in the game; or worse, becomes obsolete and to keep it in becomes detrimental to your finished work. "But, all that time! " you say...."Exactly, that's what I mean." There are times to fully model and times when it is better not to, and times when it would just be a waste of time. The art is in knowing which is which. For instance this picture is a perfect example of simplicity in action to produce a complete and finished result. Planes, instead of fully modeled 3D trees. This becomes a need, when you want soft shading in ray tracing, a fully modeled CG tree would not give. And now another bubble burst, the male figure in the window is also "window dressing" (Please pay no attention to that man behind the curtain.....:-) However, there are times when a flat plane won't do it either.



So just use the plane resolution option and divide your plane. then you can, as in this case, put a curve in it, that will add depth and help the shading of an object that will not be seen clearly enough for the viewer to know the difference. I love to model as much as anyone, but I do not like to waste my time when I don't have to, I'd rather save that time to model something that is really going to count.

In all this, remember, Truespace, no matter what version you have, is a super versatile program because it has so many options with any and all of it's tools. The combinations are almost endless, so experiment, experiment, experiment! Have fun with this. You may be very pleasantly surprised by the results.

Happy Truespacin'!

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