

Tcl3D demos at a glance

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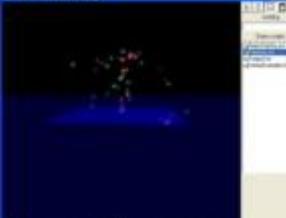
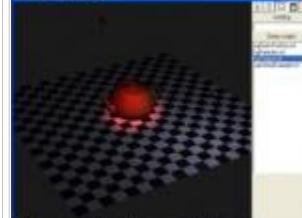
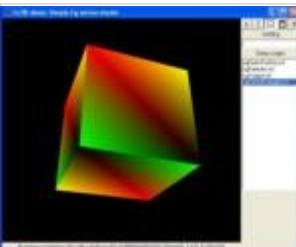
Document generated with Tcl 8.4.18 on 2010/07/17 22:30:54

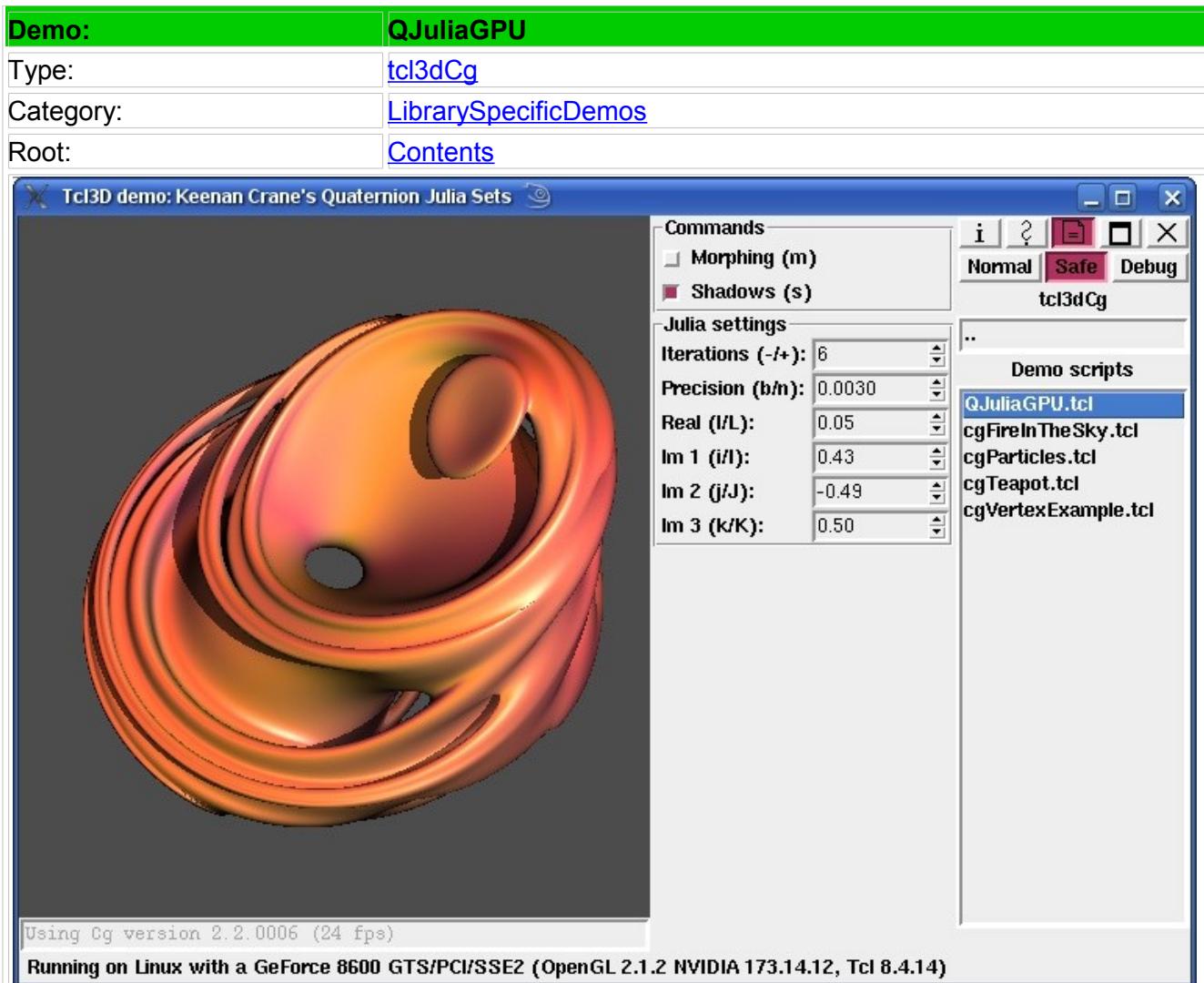
Overview	
Category	Type
LibrarySpecificDemos	tcl3dCg tcl3dFTGL tcl3dGauges tcl3dOde tcl3dOgl tcl3dOglExt tcl3dSDL tcl3dTogl
Tcl3DSpecificDemos	None
TutorialsAndBooks	CodeSampler GameProgrammer NeHe RedBook
OpenSceneGraph	CubosLocos FopingTutorials NPS-Tutorials OsgHelp QuickStartGuide

Category: [LibrarySpecificDemos](#)

Root: [Contents](#)

Types: [tcl3dCg](#) [tcl3dFTGL](#) [tcl3dGauges](#) [tcl3dOde](#) [tcl3dOgl](#) [tcl3dOglExt](#) [tcl3dSDL](#) [tcl3dTogl](#)

Type:	tcl3dCg		
Category:	LibrarySpecificDemos		
Root:	Contents		
This section contains Cg demo applications from several resources, that have been ported to Tcl3D. The examples cover vertex and fragment shader programming in Cg. Original sources from different sites. See the documentation for details.			
Available demos			
			
QJuliaGPU	cgFireInTheSky	cgParticles	cgTeapot
			
cgVertexExample			



QJuliaGPU -- Keenan Crane (kcrane@uiuc.edu)
4/17/2004

This program ray traces the quaternion Julia set in a fragment shader using the sphere tracing method. The program draws a fullscreen quad where each fragment of the quad specifies a different ray. These rays are passed to the fragment shader which iteratively takes conservative steps along a ray as determined by a distance estimator for the set. The rays will either stop when close to an isosurface of the distance function (considered a hit), or leave the bounding sphere of the Julia set. If the ray is a hit, shading is performed by approximating the gradient of the distance function and using this as a surface normal.

A more complete description of the sphere tracing method can be found in John Hart's paper, "Ray Tracing Deterministic 3-D Fractals"
(<http://graphics.cs.uiuc.edu/~jch/papers/rtqjs.pdf>) .

Controls:

```

left mouse button:      rotate view
middle mouse button:   zoom in/out
right mouse button:    translate view
m:                      toggle morph animation
s:                      toggle shadows on/off
r:                      reload shaders from disk
i/I:                   increment/decrement 1st imaginary component of Julia set
constant
j/J:                   increment/decrement 2nd imaginary component of Julia set

```

```
constant          increment/decrement 3rd imaginary component of Julia set
k/K:              constant
constant          increment/decrement real component of Julia set constant
l/L:              -/+:               change number of iterations used to test convergence of
a point           b/n:              change precision of rendering
```

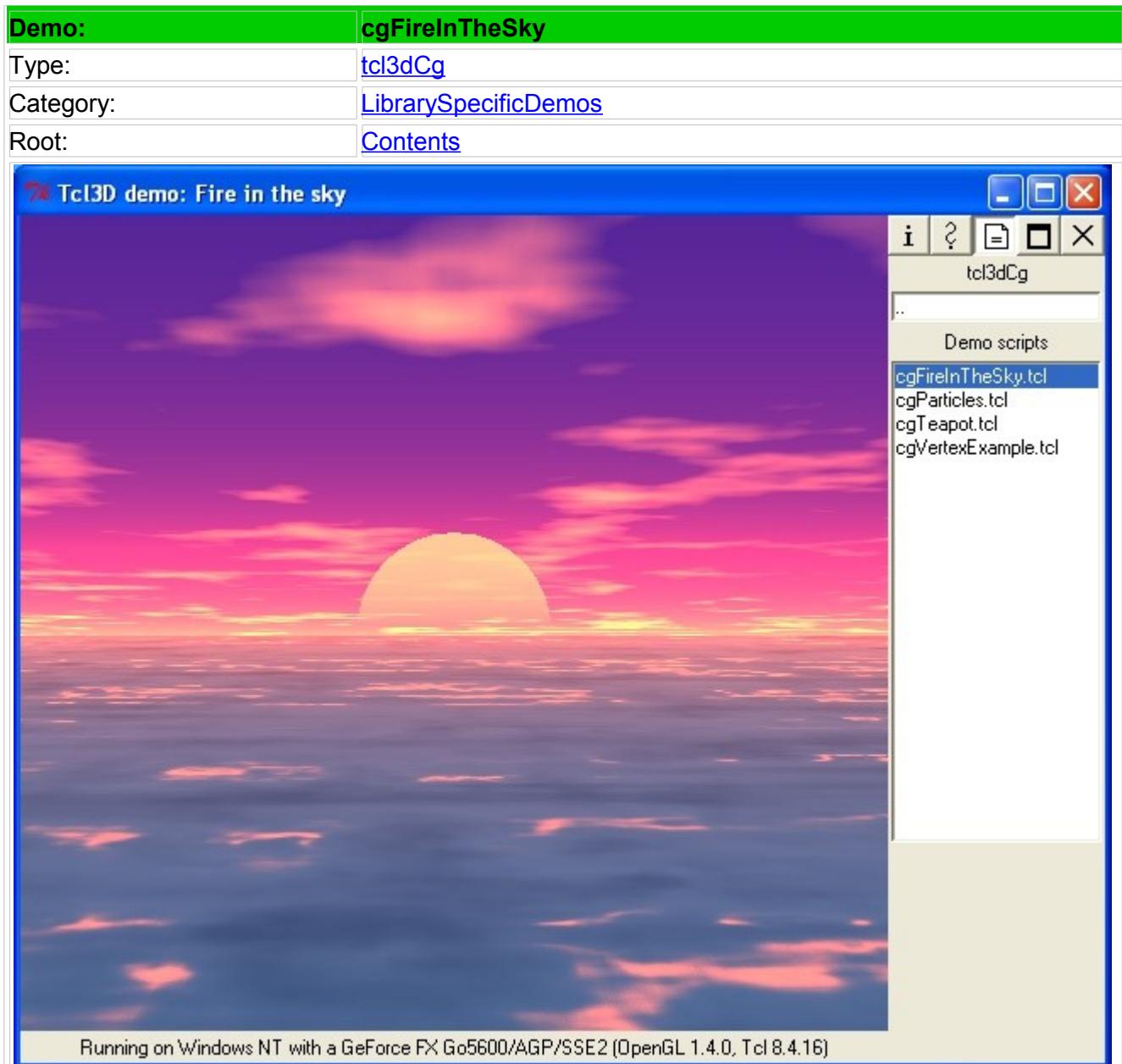
By default the program will shift through a random constants for the Julia set within the cube $[-1,1]^4$. Increasing the number of iterations or the precision will increase the amount of detail seen in the rendering. The former more accurately determines whether a point is included in the set, whereas the latter intersects an isosurface of the distance function closer to the actual set. Both of these parameters run into precision or computation limits when set too high.

Original C++ and Cg code by Keenan Crane (kcrane@uiuc.edu)

See http://www.cs.caltech.edu/~keenan/project_qjulia.html for the original files.

Modified for Tcl3D by Paul Obermeier 2009/08/29

See www.tcl3d.org for the Tcl3D extension.



cgFireInTheSky.tcl

Original files from: <http://www.shadertech.com/shaders/FireInTheSky-src.zip>

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Modified for Tcl3D by Paul Obermeier 2005/11/07
See www.tcl3d.org for the Tcl3D extension.

Demo:	cgParticles
Type:	tcl3dCg
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Particles with Cg

The screenshot shows a 3D rendering of a scene with numerous small, colorful particles (representing a fire in the sky) and a single blue plane. The window has a title bar "Tcl3D demo: Particles with Cg" and a menu bar with icons for help, file, and exit. The main area displays the rendered scene.

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16)

cgParticles.tcl

Particle Effects using CG and OpenGL

Original files from: <http://www.shadertech.com/shaders/ParticleSystem-src.zip>

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Modified for Tcl3D by Paul Obermeier 2005/11/07

See www.tcl3d.org for the Tcl3D extension.

Demo:	cgTeapot
Type:	tcl3dCg
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Teapot with Cg

cgTeapot.tcl

Original files from: <http://developer.nvidia.com/Cg>
This is the example called interfaces_ogl as included in the Cg Toolkit.

Modified for Tcl3D by Paul Obermeier 2005/11/07
See www.tcl3d.org for the Tcl3D extension.

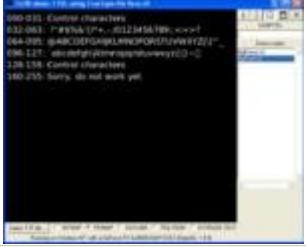
Demo:	cgVertexExample
Type:	tcl3dCg
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Simple Cg vertex shader

cgVertexExample.tcl

Original files from: <http://developer.nvidia.com/Cg>
This is the example called runtime_ogl as included in the Cg Toolkit.

Modified for Tcl3D by Paul Obermeier 2005/11/07
See www.tcl3d.org for the Tcl3D extension.

Type:	tcl3dFTGL
Category:	LibrarySpecificDemos
Root:	Contents
This section contains FTGL demo applications written in Tcl3D. The examples cover the demo applications distributed with FTGL.	
Available demos	
	
ftglDemo	ftglTest

Demo:	ftglDemo
Type:	tcl3dFTGL
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: FTGL Demo

The screenshot shows a window titled "Tcl3D demo: FTGL Demo". Inside the window, the text "TCIB3D" is displayed in a large, 3D extruded font. Below the text, it says "C:/tmp/tcl3dData/Vera.ttf" and "Extruded Font". At the bottom of the window, there is a status bar with keyboard shortcuts: "Key-Escape Exit", "Key-Return Switch to (and leave) edit mode", and "Key-Space Toggle font types". The status bar also indicates "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

`ftglDemo.tcl`

This demo demonstrates the different rendering styles available with FTGL.
Press <n> to change the font rendering style.
Press <enter> to enable edit mode.

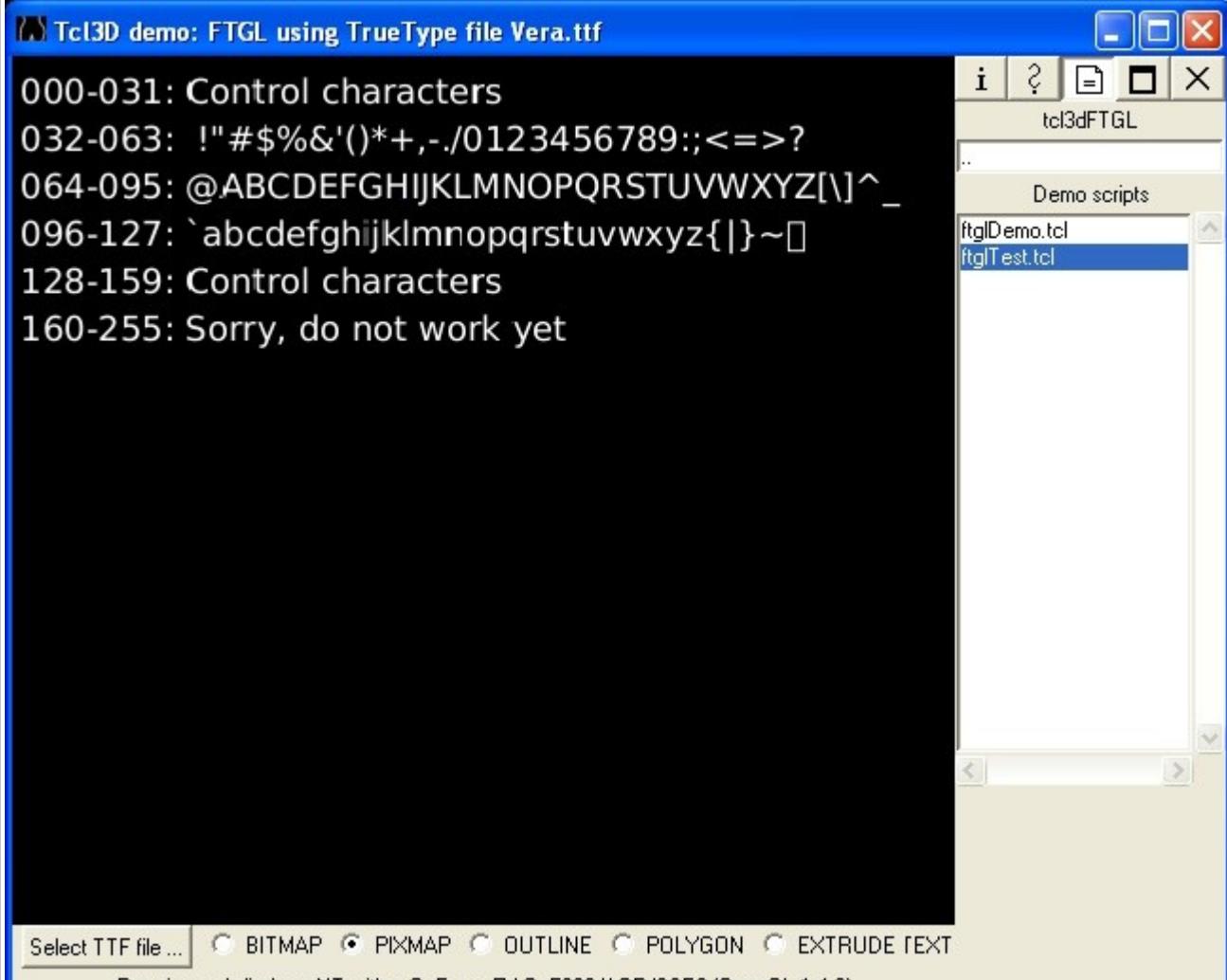
Please contact me if you have any suggestions, feature requests, or problems.

Henry Maddocks
`henryj@paradise.net.nz`
`http://homepages.paradise.net.nz/henryj/`

Modified for Tcl3D by Paul Obermeier 2006/01/18
See www.tcl3d.org for the Tcl3D extension.

Demo:	ftglTest
Type:	tcl3dFTGL
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: FTGL using TrueType file Vera.ttf



The application window title is "Tcl3D demo: FTGL using TrueType file Vera.ttf". The main area displays text samples for different font rendering types: Control characters, punctuation, uppercase letters, lowercase letters, and more. Below the main area, there is a toolbar with buttons for "Select TTF file ...", "BITMAP", "PIXMAP" (selected), "OUTLINE", "POLYGON", and "EXTRUDE TEXT". A status bar at the bottom indicates "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0)".

```

ftglTest.tcl

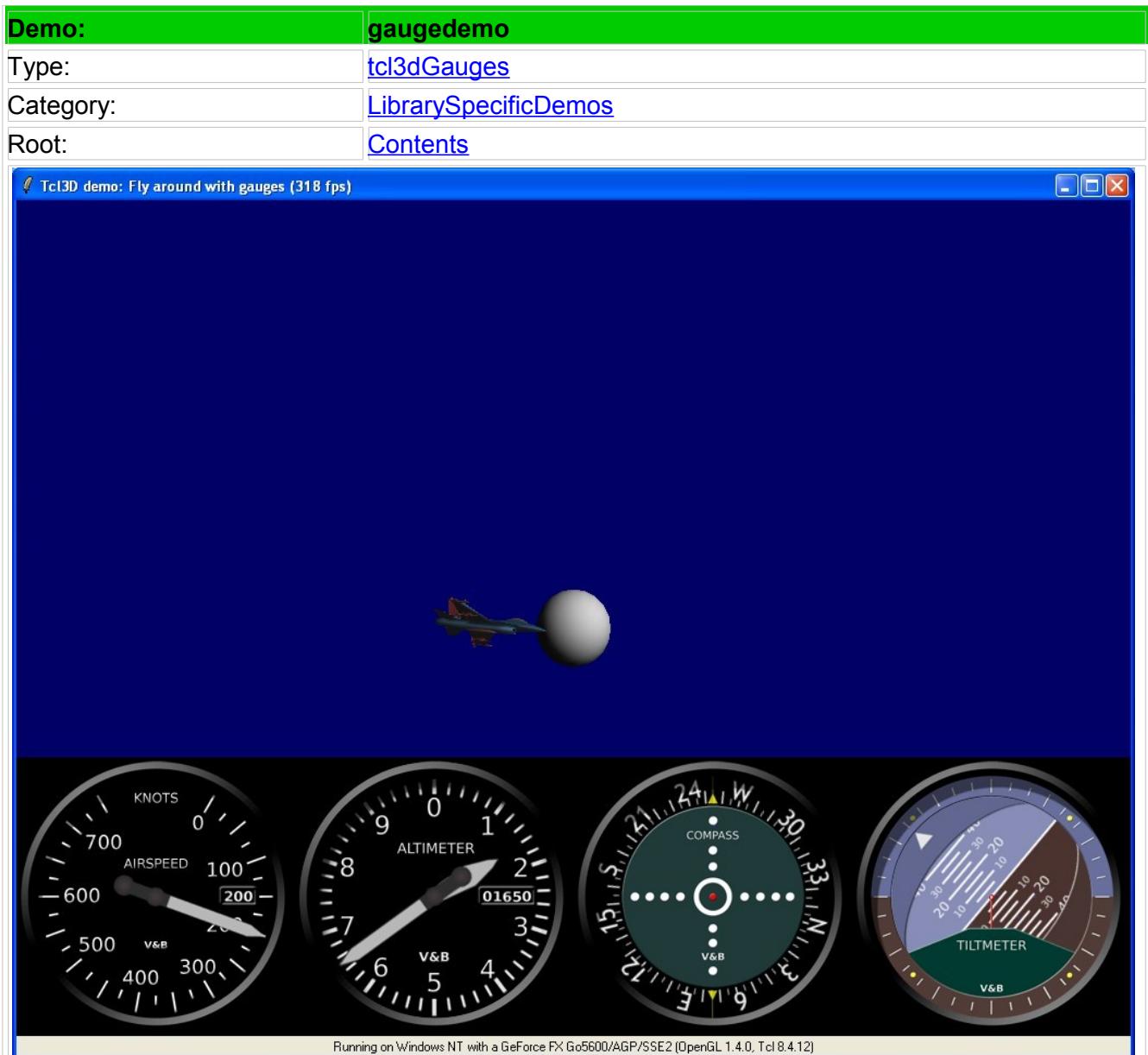
C++ source changed by mrn@paus.ch/ max rheiner
original source: henryj@paradise.net.nz

Modified for Tcl3D by Paul Obermeier 2006/01/18
See www.tcl3d.org for the Tcl3D extension.

A test program showing the 5 different font rendering types.

```

Type:	tcl3dGauges
Category:	LibrarySpecificDemos
Root:	Contents
This section contains demo applications written with Tcl3D extensions packages. The examples cover the tcl3dGauges package, which was supplied by Victor G. Bonilla.	
Available demos	
	
gaugedemo	gaugetest



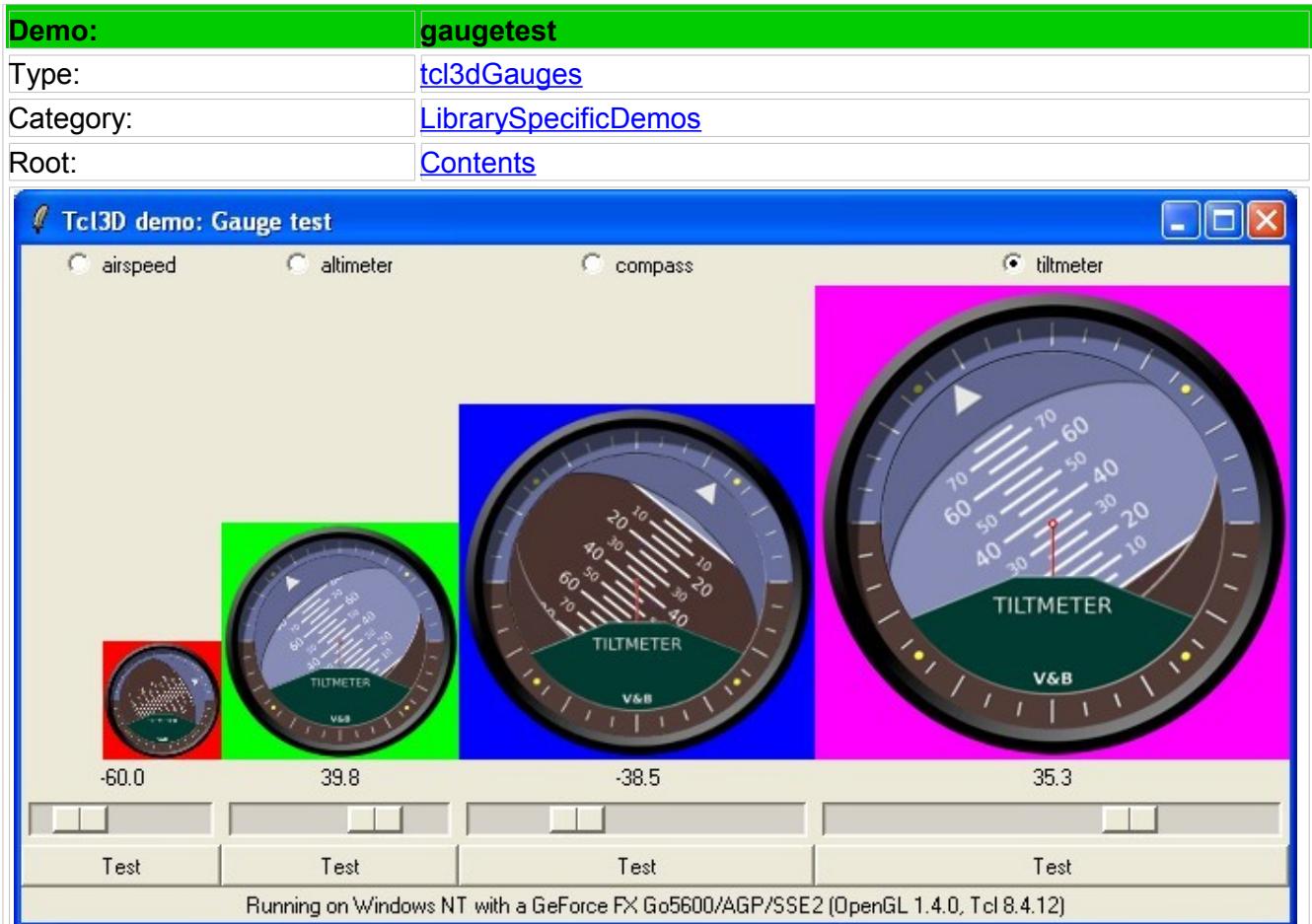
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Module: Tcl3D -> tcl3dGauges
Filename: gaugedemo.tcl

Author: Paul Obermeier

Description: Demo program showing the use of the Tcl3D extension
package gauge.



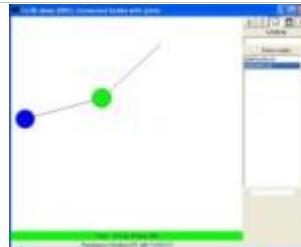
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Module: Tcl3D -> tcl3dGauges
Filename: gaugetest.tcl

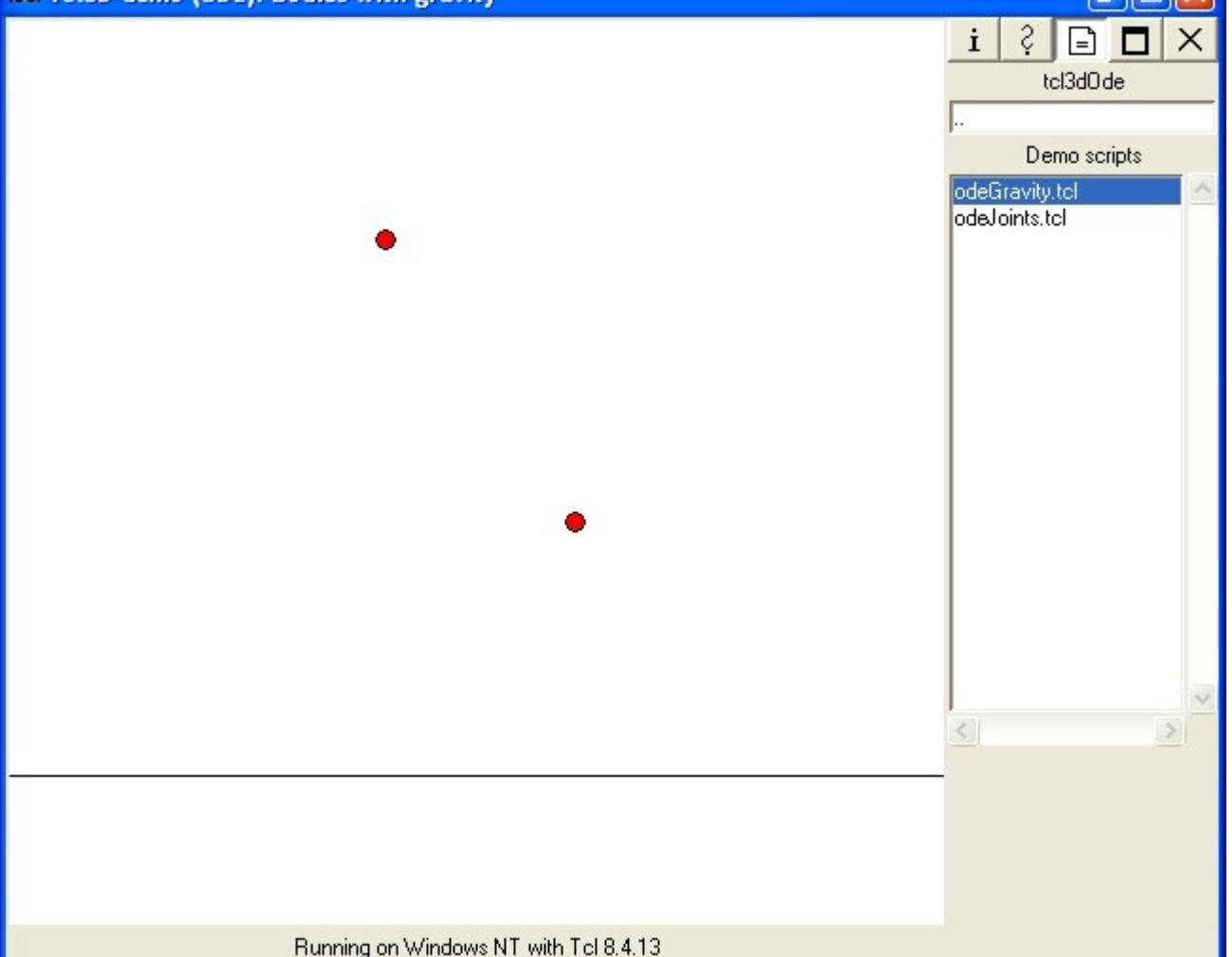
Author: Paul Obermeier

Description: Test program for the Tcl3D extension package gauge.
The program allows to show the 4 gauges at different sizes.

Type:	tcl3dOde
Category:	LibrarySpecificDemos
Root:	Contents
This section contains ODE demo applications written in Tcl3D. The examples cover some demo applications distributed with PyOde.	
Available demos	
	odeGravity
	odeJoints

Demo:	odeGravity
Type:	tcl3dOde
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo (ODE): Bodies with gravity



The screenshot shows a Windows application window titled "Tcl3D demo (ODE): Bodies with gravity". The window has a toolbar at the top with icons for information, help, file operations, and close. Below the toolbar is a menu bar with "tcl3dOde" selected. A sidebar on the right is titled "Demo scripts" and lists "odeGravity.tcl" and "odeJoints.tcl", with "odeGravity.tcl" currently selected. The main area of the window displays a 3D scene with two small red spheres falling towards the bottom. At the bottom of the window, a status bar reads "Running on Windows NT with Tcl 8.4.13".

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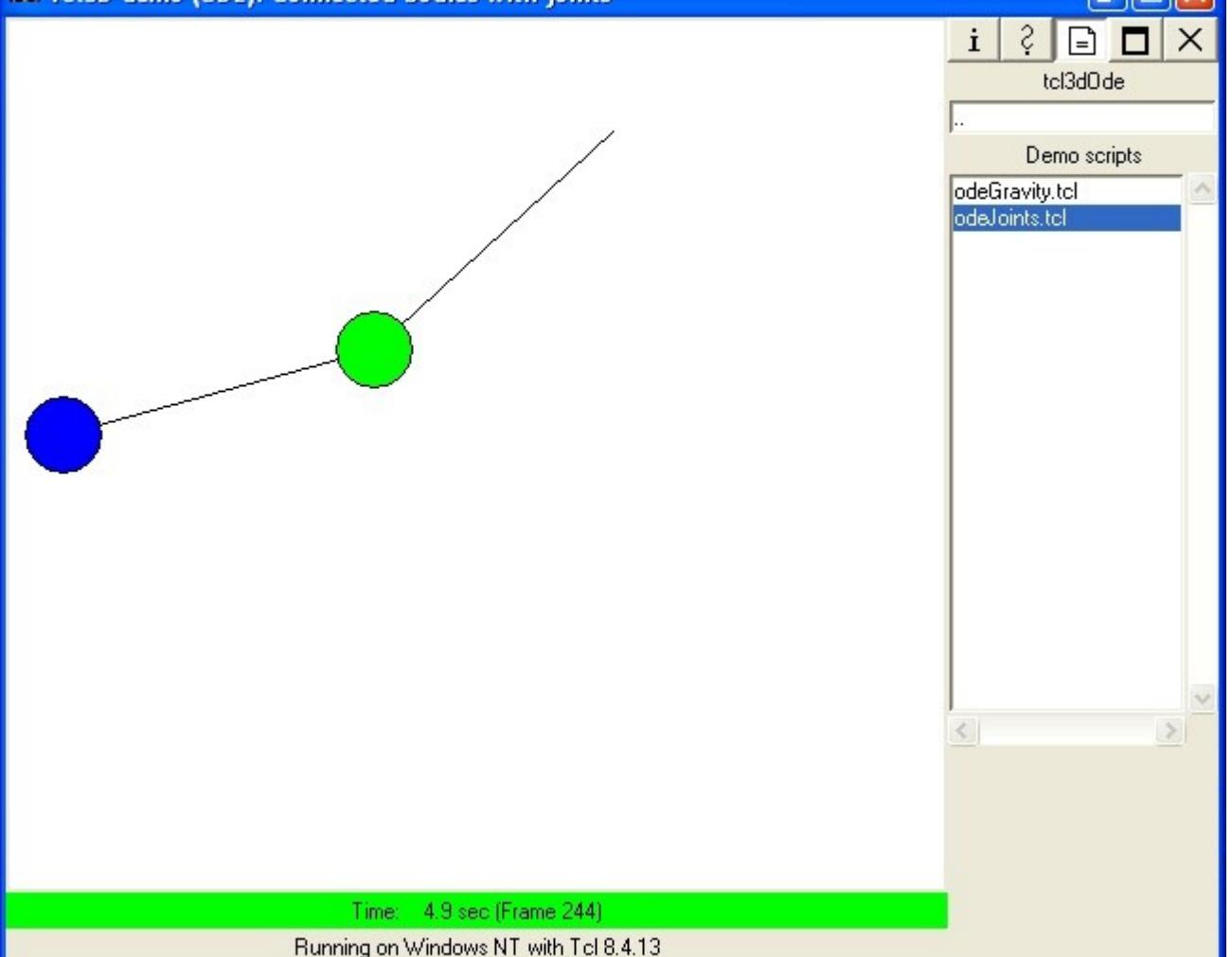
Module: Tcl3D -> tcl3dOde
Filename: odeGravity.tcl

Author: Paul Obermeier

Description: Tcl3D Ode example: Bodies influenced by gravity.
Based on PyODE Tutorial 1 By Matthias Baas.

Demo:	odeJoints
Type:	tcl3dOde
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo (ODE): Connected bodies with joints



The screenshot shows a 3D simulation window titled "Tcl3D demo (ODE): Connected bodies with joints". Inside the window, there are two spheres: one blue sphere on the left and one green sphere on the right, connected by a thin line representing a joint. The window has a toolbar at the top with icons for information, help, file operations, and close. Below the toolbar is a menu bar with "tcl3dOde". A sidebar on the right is titled "Demo scripts" and lists "odeGravity.tcl" and "odeJoints.tcl", with "odeJoints.tcl" currently selected. At the bottom of the window, a green bar displays the time as "Time: 4.9 sec (Frame 244)" and the operating system as "Running on Windows NT with Tcl 8.4.13".

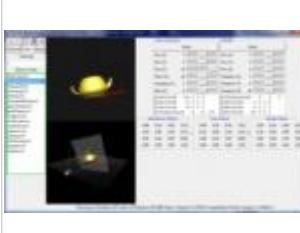
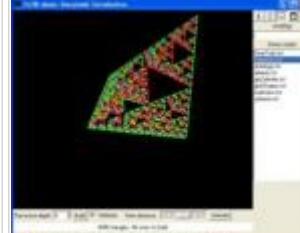
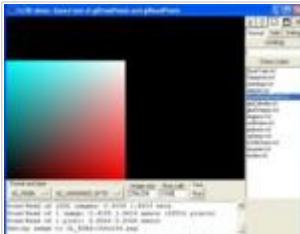
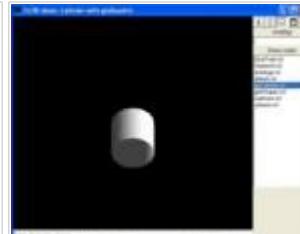
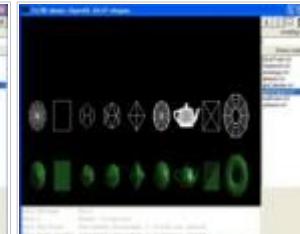
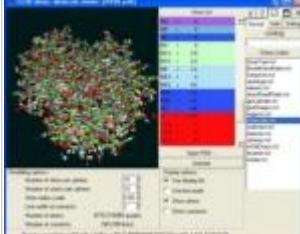
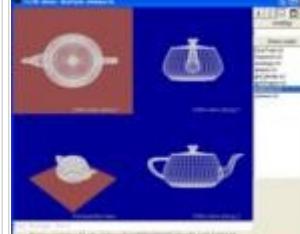
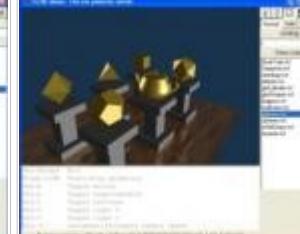
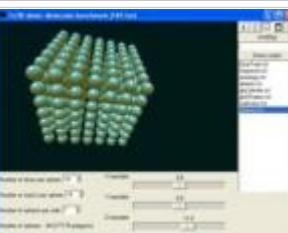
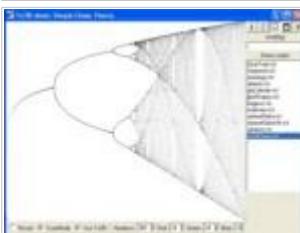
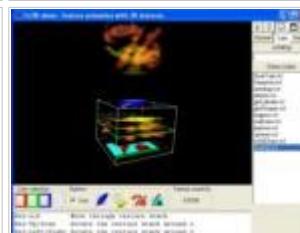
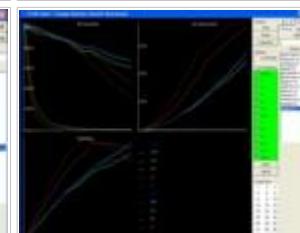
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Module: Tcl3D -> tcl3dOde
Filename: odeJoints.tcl

Author: Paul Obermeier

Description: Tcl3D Ode example: Connected bodies with joints
Based on PyODE Tutorial 2 By Matthias Baas.

Type:	tcl3dOgl		
Category:	LibrarySpecificDemos		
Root:	Contents		
This section contains OpenGL demo applications from several resources, that have been ported to Tcl3D. The examples cover basic OpenGL programming. Original sources from different sites. See the documentation for details.			
Available demos			
			
GearTrain	ModelViewMatrix	Sierpinski	animlogo
			
atlantis	drawReadPixels	gluCylinder	glutShapes
			
imgproc	molecules	multiview	platonic
			
spheres	tcl3dChaos	texanim	trislam

Demo:	GearTrain
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

Gear Train Simulation - Q Solutions

The window title is "Gear Train Simulation - Q Solutions". The menu bar includes "tcl3dOgl" and "Demo scripts" with options like GearTrain.tcl, Sierpinski.tcl, animlogo.tcl, atlantis.tcl, gluCylinder.tcl, glutShapes.tcl, multiview.tcl, and spheres.tcl.

Key bindings shown in the window:

- Key-Escape Exit
- B1-Motion Rotate
- B2-Motion Zoom

Text at the bottom of the window:

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

GearTrain.tcl

```

GearTrain Simulator * Version: 1.00

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<skdutta@del3.vsnl.net.in>

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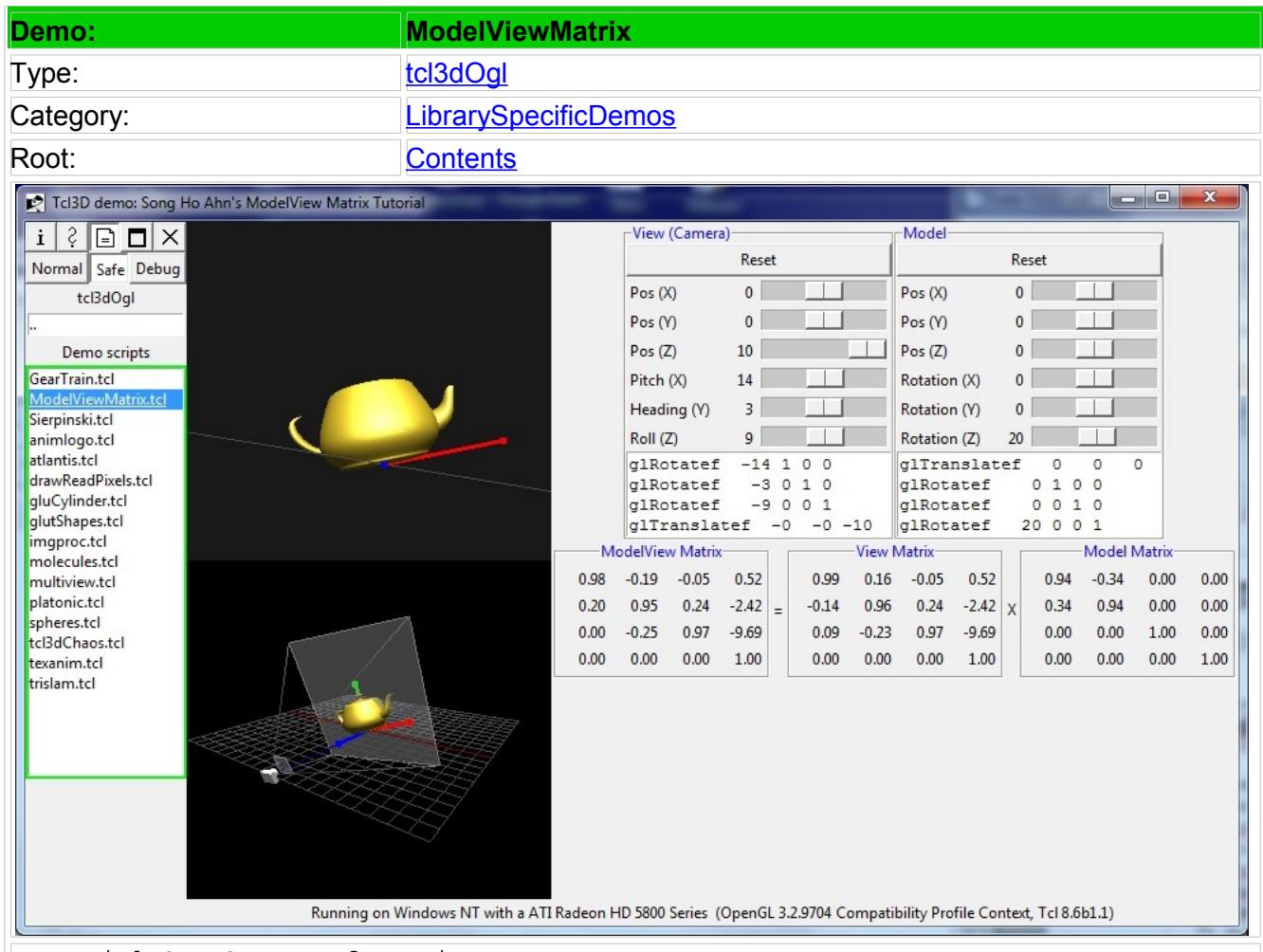
```

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Slightly modified for Tcl3D presentation by Paul Obermeier 2006/08/02
See www.tcl3d.org for the Tcl3D extension.



Tutorial OpenGL Transformation

Original C++ code by Song Ho Ahn (song.ahn@gmail.com)

See www.songho.ca/opengl/gl_transform.html for the original files

Modified for Tcl3D by Paul Obermeier 2009/09/13

See www.tcl3d.org for the Tcl3D extension.

Demo:	Sierpinski
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Sierpinski Tetrahedron

The window title is "Tcl3D demo: Sierpinski Tetrahedron". The menu bar includes "tcl3d0gl" with options like "Demo scripts", "GearTrain.tcl", "Sierpinski.tcl" (which is selected), "animlogo.tcl", "atlantis.tcl", "gluCylinder.tcl", "glutShapes.tcl", "multiview.tcl", and "spheres.tcl".

Control buttons at the bottom left include "Recursive depth" (set to 6), "Build" (button), "Optimize" (checkbox checked), "View distance" (button), and "Animate" (button). A status message below says "4096 triangles: 46 msec to build".

Text at the bottom states "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

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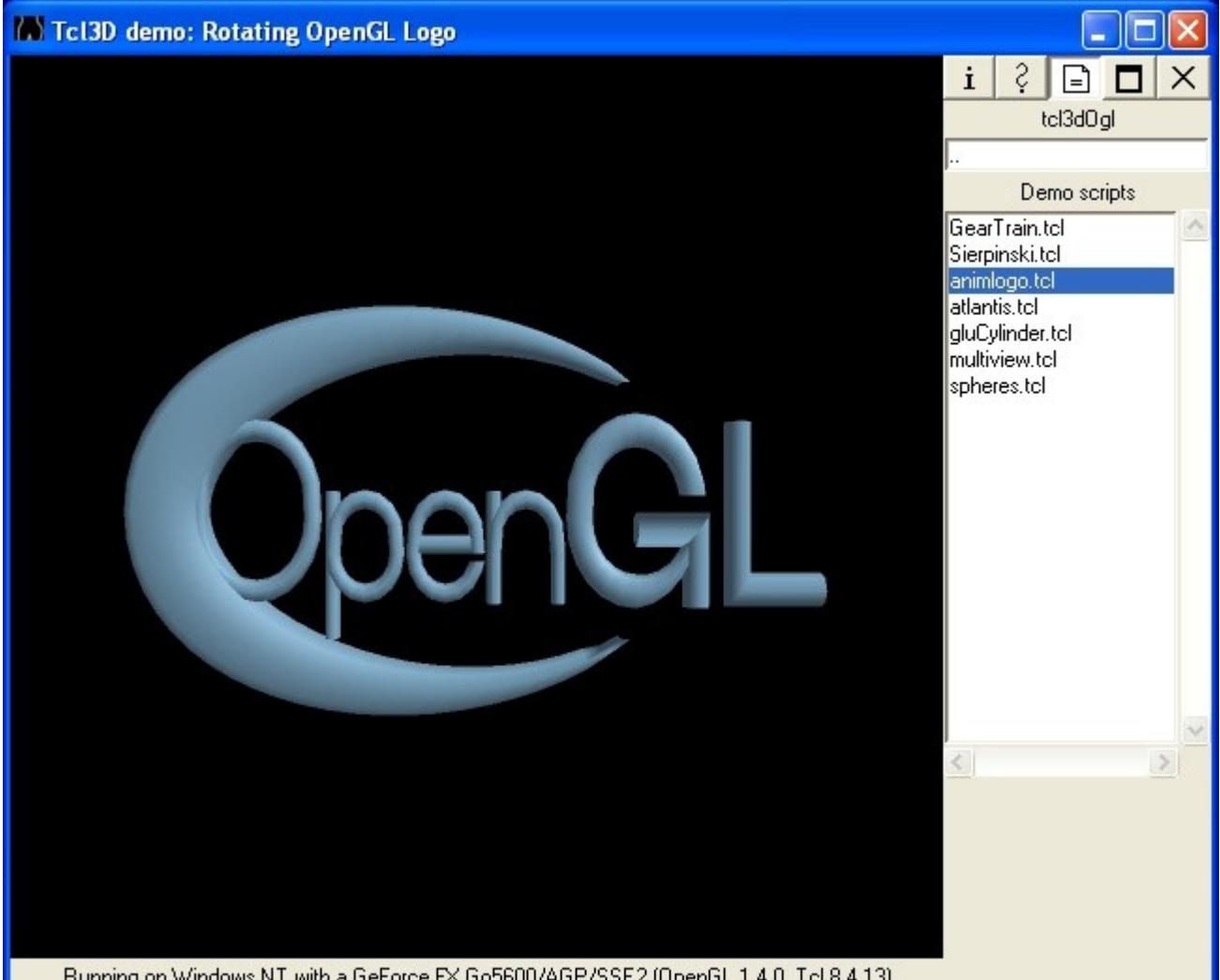
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Module: Tcl3D -> tcl3dOgl
Filename: Sierpinski.tcl

Author: Paul Obermeier

Description: Tcl3D demo displaying a 3D Sierpinski Tetrahedron.
Derived from a demo by Gerard Sookahet (tetra-3dc.tcl), which used the 3dcanvas package.
The original version is at: <http://wiki.tcl.tk/11832>.
Incorporates optimization functions by Philip Quaife.
See the Tcl'ers Wiki <http://wiki.tcl.tk/14820> for a description of his optimizations.

Demo:	animlogo
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

A screenshot of a Windows application window titled "Tcl3D demo: Rotating OpenGL Logo". The main area displays a 3D rendering of the OpenGL logo, which consists of the word "OpenGL" in a stylized, rounded font. The logo is blue and appears to be rotating. To the right of the main window is a sidebar titled "Demo scripts" containing a list of files: GearTrain.tcl, Sierpinski.tcl, animlogo.tcl (which is selected), atlantis.tcl, gluCylinder.tcl, multiview.tcl, and spheres.tcl.

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

animlogo.tcl

The animated OpenGL logo

This file is part of the openGL-logo demo.
(c) Henk Kok (kok@wins.uva.nl)

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Original sources available at:
http://www.opengl.org/resources/code/samples/glut_examples/demos/demos.html

Modified for Tcl3D by Paul Obermeier 2006/08/02
See www.tcl3d.org for the Tcl3D extension.

Demo:	atlantis
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Atlantis

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Original sources available at:

http://www.opengl.org/resources/code/samples/glut_examples/demos/demos.html

Modified for Tcl3D by Paul Obermeier 2005/08/14

See www.tcl3d.org for the Tcl3D extension.

Demo:	drawReadPixels
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Speed test of glDrawPixels and glReadPixels

The screenshot shows a Windows application window titled "Tcl3D demo: Speed test of glDrawPixels and glReadPixels". Inside the window, there is a large black area containing a vertical color gradient from teal at the top to red at the bottom. Below this area is a control panel with the following settings:

- Format and type: GL_RGBA
- Image size: 256x256
- Num calls: 1000
- Test: Run

Below the control panel, a text window displays the results of the speed test:

```
Draw/Read of 1000 images: 0.4355 1.9636 secs
Draw/Read of 1 image: 0.4355 1.9636 msecs (65536 pixels)
Draw/Read of 1 pixel: 0.0066 0.0300 msecs
Saving image to GL_RGBA-256x256.png
```

At the bottom of the window, it says "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16)".

testDrawReadPixels.tcl

Tcl3D demo testing the speed of the glDrawPixels and glReadPixels functions. The program generates a color gradient image of a specified size. If the image size is greater than 256x256, the color gradient is tiled. This image is then drawn into the framebuffer with glDrawPixels and read back with glReadPixels several times. The time needed for drawing and reading back is reported into a text widget and onto stdout (for batch processing). The format and type of the image data can be specified for testing the differences in speed. Currently the following formats and types are implemented: Formats: GL_RGB, GL_BGR, GL_RGBA, GL_BGRA. Types : GL_UNSIGNED_BYTE

Author: Paul Obermeier
Date: 2009-07-16

Demo:	gluCylinder
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Cylinder with gluQuadric

The window title bar says "Tcl3D demo: Cylinder with gluQuadric". The menu bar includes "File", "Edit", "Help", and "tcl3dOgl". The "tcl3dOgl" menu has options like "...", "Demo scripts", "GearTrain.tcl", "Sierpinski.tcl", "animlogo.tcl", "atlantis.tcl", "gluCylinder.tcl" (which is selected), "glutShapes.tcl", "multiview.tcl", and "spheres.tcl".

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

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Module: Tcl3D -> tcl3dOgl
 Filename: gluCylinder.tcl

Author: Paul Obermeier

Description: Tcl3D demo showing the use of gluQuadric routines to draw a cylinder.

Demo:	glutShapes
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: OpenGL GLUT shapes

Key-Escape Exit
 Key-r Reset rotation
 Key-Up|Down Decrease| Increase x rotation speed
 Key-Left|Right Decrease| Increase y rotation speed

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

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Module: Tcl3D -> tcl3dOgl
 Filename: glutShapes.tcl

Author: Paul Obermeier
 Date: 2006-12-01

Description: Tcl3D demo showing all supported GLUT shapes.

Demo:	imgproc
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Image processing with the accumulation buffer

tcl3d0gl

- ... Demo scripts
- GearTrain.tcl
- Sierpinski.tcl
- animlogo.tcl
- atlantis.tcl
- gluCylinder.tcl
- glutShapes.tcl
- imgproc.tcl**
- multiview.tcl
- spheres.tcl
- tcl3dChaos.tcl

Brighten Saturate Sharpen Contrast Alpha: 1.5

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.14)

imgproc.c - by David Blythe, SGI

Examples of various image processing operations coded as OpenGL accumulation buffer operations. This allows extremely fast image processing on machines with hardware accumulation buffers (RealityEngine, InfiniteReality, VGX).

This demo is part of the advanced glut demos.

See http://www.opengl.org/resources/code/samples/glut_examples/advanced/advanced.html

Modified for Tcl3D by Paul Obermeier 2007/07/28
See www.tcl3d.org for the Tcl3D extension.

Demo:	molecules
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Molecule viewer (4HBB.pdb)

Atom List

NA :	4
NB :	4
NC :	4
ND :	4
ND1 :	38
ND2 :	20
NE :	12
NE1 :	6
NE2 :	46
NH1 :	12
NH2 :	12
NZ :	44
O :	795
O1A :	4
O1D :	4
O2A :	4

Normal Safe Debug
tcl3dOgl
...
Demo scripts
GearTrain.tcl
ModelViewMatrix.tcl
Sierpinski.tcl
animlogo.tcl
atlantis.tcl
drawReadPixels.tcl
gluCylinder.tcl
glutShapes.tcl
imgproc.tcl
molecules.tcl
multiview.tcl
platonic.tcl
spheres.tcl
tcl3dChaos.tcl
texanim.tcl
trislam.tcl

Open PDB ...
Animate

Modelling options

Number of slices per sphere:	15
Number of stacks per sphere:	10
Atom radius scale:	0.80
Line width of connects:	2
Number of atoms:	4779 (716850 quads)
Number of connects:	180 (180 lines)

Display options

<input checked="" type="checkbox"/> Use display list
<input type="checkbox"/> Use line mode
<input checked="" type="checkbox"/> Show atoms
<input type="checkbox"/> Show connects

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16)

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Module: Tcl3D -> tcl3dOgl
Filename: molecules.tcl

Author: Paul Obermeier

Description: Tcl3D demo displaying molecules as colored spheres.

The molecule description is read from a Protein Data Base file. See <http://www.pdb.org> for more information about PDB files. This site is also a resource for downloading PDB files.

Currently supported keywords are ATOM, HETATM and CONECT. Feel free to extend and optimize the PDB parser.

Atom color coding and atom radius are taken from the OpenSource molecule viewer QuteMol: <http://qutemol.sourceforge.net/>

Demo:	multiview
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Multiple viewports

The window title is "Tcl3D demo: Multiple viewports". The menu bar includes "File", "Edit", "Help", and "tcl3dOgl". The "tcl3dOgl" menu has options: "Demo scripts", "GearTrain.tcl", "Sierpinski.tcl", "animlogo.tcl", "atlantis.tcl", "gluCylinder.tcl", "glutShapes.tcl", "multiview.tcl" (which is selected), and "spheres.tcl". The status bar shows "Key-Escape Exit" and "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

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Module: Tcl3D -> tcl3dOgl
Filename: multiview.tcl

Author: Paul Obermeier

Description: Tcl3D demo showing the famous teapot in 4 different viewports on a single toggl widget.

Demo:	platonic
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: The six platonic solids

The demo window has a menu bar with icons for Help, File, Normal, Safe, and Debug. A list of demo scripts is on the right, with 'platonic.tcl' highlighted.

Key bindings:

- Key-Escape Exit
- Mouse-L|MR Start|Stop animation
- Key-m Toggle mirror
- Key-p Toggle teapotahedron
- Key-t Toggle textures
- Key-0 Toggle light 0
- Key-1 Toggle light 1
- Key-+|- Increment|Decrement camera speed

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16)

platonic.c - An OpenGL demonstration that draws the six platonic solids:
The tetrahedron, the cube, the dodecahedron, the octahedron,
the icosahedron and the teapotahedron. :-)
The ray-traced image by Arvo and Kirk on the front cover of
"An Introduction to Ray Tracing" (A. S. Glassner (ed.),
Academic Press) inspired me to write this demo.
A menu with a number of options is tied to the left mouse
button.

Author: Gustav Taxen, nv91-gta@nada.kth.se

Notes: The code is not very pretty, nor is it optimized wrt OpenGL.
Should add shadows as well, but I'll save that for the next
version...

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Original C code taken from:

<http://www.student.nada.kth.se/~nv91-gta/OpenGL/projects/platonic/>

Modified for Tcl3D by Paul Obermeier 2008/12/21
See www.tcl3d.org for the Tcl3D extension.

See <http://design.osu.edu/carlson/history/lesson20.html> about the history of the famous Utah teapot. This page also contains an image of the original ray-traced scene by Arvo and Kirk.

The image is also on the front page of Glassner's book "An Introduction to Ray Tracing".

For a mathematical description of the five platonic solids see
http://en.wikipedia.org/wiki/Platonic_solid

Demo:	spheres
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Molecules benchmark (182 fps)

The window title bar says "Tcl3D demo: Molecules benchmark (182 fps)". The menu bar includes "i ? < > X" and "tcl3d0gl". A toolbar below the menu has icons for "Demo scripts", "GearTrain.tcl", "Sierpinski.tcl", "animlogo.tcl", "atlantis.tcl", "gluCylinder.tcl", "glutShapes.tcl", "multiview.tcl", and "spheres.tcl", with "spheres.tcl" being the active one.

Number of slices per sphere: X translate:

Number of stacks per sphere: Y translate:

Number of spheres per side: Z translate:

Number of spheres: 343 (77175 polygons)

Use display list Use flat shading Use line mode

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

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Module: Tcl3D -> tcl3dOgl
Filename: spheres.tcl

Author: Paul Obermeier

Description: Tcl3D demo displaying spheres in various modes.

Demo:	tcl3dChaos
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Simple Chaos Theory

The screenshot shows a 3D rendering of a fractal structure, likely a Sierpinski-like construction, displayed in a window titled "Tcl3D demo: Simple Chaos Theory". The window has a menu bar with icons for information, help, file, and exit. A toolbar below the menu bar includes "Revert", "ScanMode" (checked), "Use Tcl3D" (checked), and controls for Iterations (300), Red (24), Green (24), and Blue (24). Below the toolbar are buttons for "Start Chaos" and "Stop Chaos", with a note that it took 9.0 seconds for 36851 pixels. A status bar at the bottom indicates the demo is running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16).

Demo scripts

- GearTrain.tcl
- Sierpinski.tcl
- animlogo.tcl
- atlantis.tcl
- gluCylinder.tcl
- glutShapes.tcl
- imgproc.tcl
- multiview.tcl
- sphereFlake.tcl
- sphereFlakeVtk.tcl
- spheres.tcl
- tcl3dChaos.tcl**

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Module: Tcl3D -> tcl3dOgl
 Filename: tcl3dChaos.tcl

Author: Paul Obermeier

Description: Implementation of algorithm described on Wiki page "Simple Chaos Theory with Tcl" (<http://wiki.tcl.tk/11887>) using Tcl3D.
 Interesting values:
 2000 8 10 14 revert
 6300 3 3 3 revert

Demo:	texanim
Type:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Texture animation with 3D textures.

The screenshot shows a Windows application window titled "Tcl3D demo: Texture animation with 3D textures.". Inside the window, there are two main displays. The upper display shows a quad with a 3D texture applied, which appears to be a stack of images. The lower display shows a 3D perspective view of a cube containing a stack of quads, representing the texture stack. On the right side of the window, there is a menu bar with "Normal", "Safe", and "Debug" options, and a list of "Demo scripts" including GearTrain.tcl, Sierpinski.tcl, animlogo.tcl, atlantis.tcl, gluCylinder.tcl, glutShapes.tcl, imgproc.tcl, multiview.tcl, platonic.tcl, spheres.tcl, tcl3dChaos.tcl, and texanim.tcl, with "texanim.tcl" highlighted. At the bottom left, there are color selection buttons and an "Options" section with a checked "Use:" checkbox and four icons. A "Texture coord (r)" input field shows "0.5100". Below these controls is a key binding table:

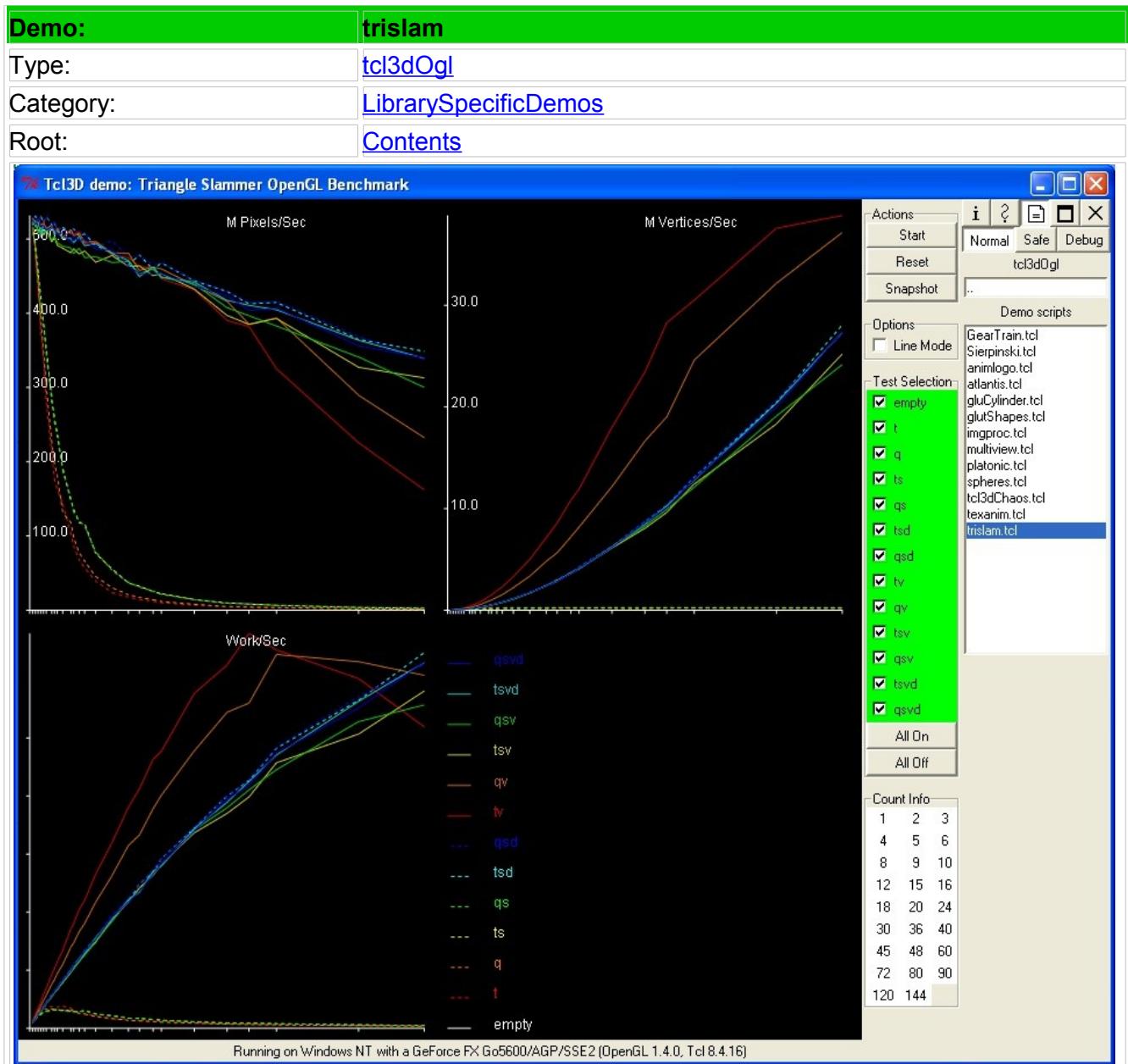
Key-n b	Move through texture stack
Key-Up Down	Rotate the texture stack around x
Key-Left Right	Rotate the texture stack around y
Key-t	Toggle color or image usage

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16)

texanim.tcl

Tcl3D demo showing the usage of a 3D texture for animation.
In the upper part of the window, a quad is drawn, which shows the actual texture animation.
In the lower half of the window, the 3D texture is visualized as a stack of quads. The sampling of the 3D texture is shown by a quad moving through the texture stack.
Either 4 predefined images can be used as textures or 4 choosable colors.

Author: Paul Obermeier
Date: 2009-01-16



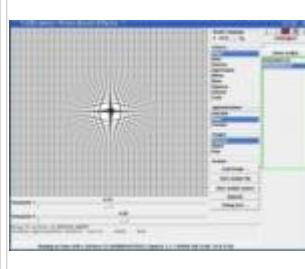
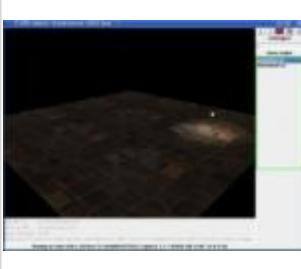
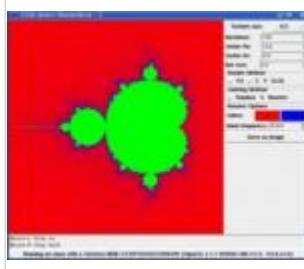
trislam.tcl

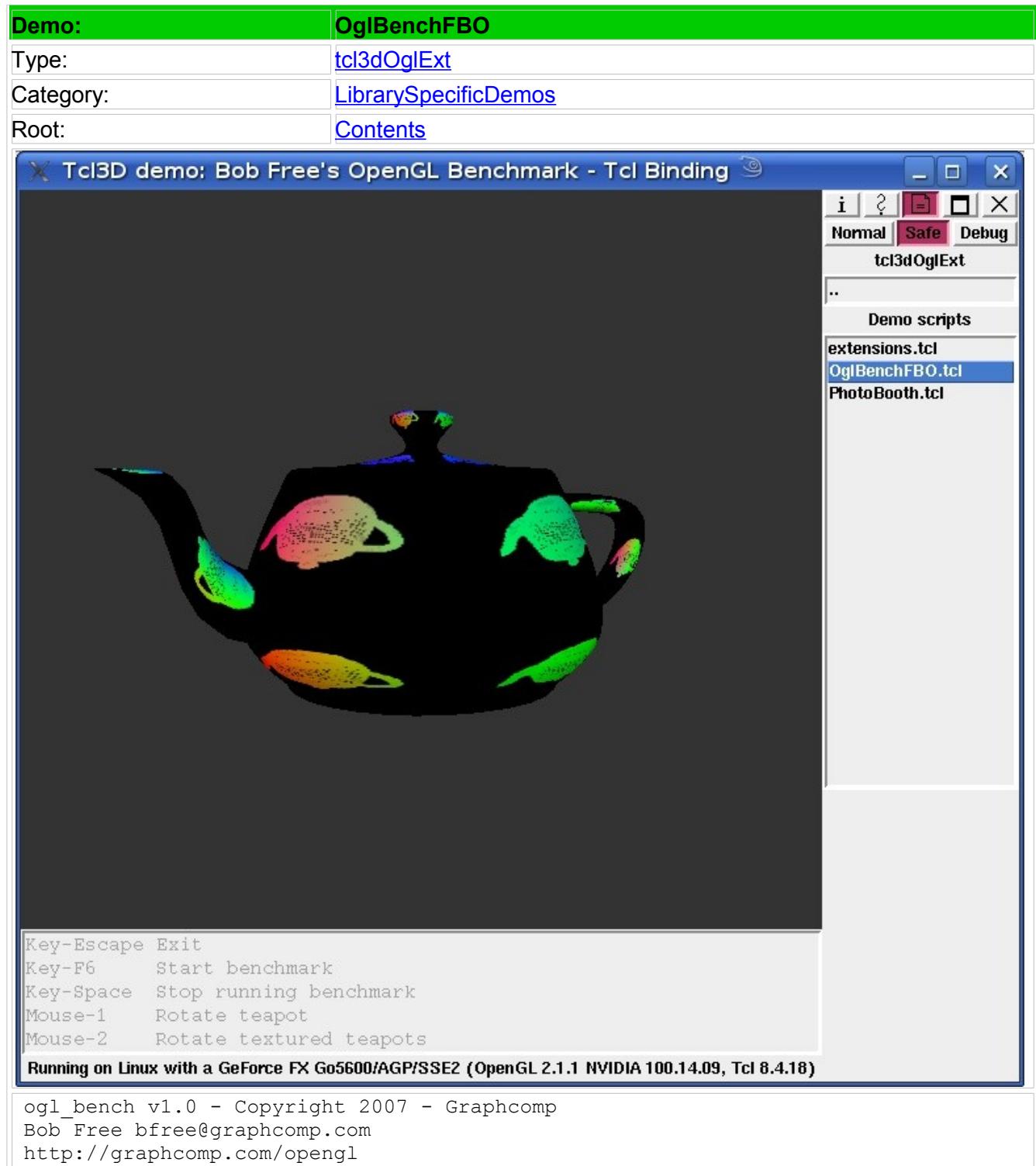
Purpose: Determine performance curves for various methods of pushing triangles and quads through the OpenGL pipeline

Copyright (c) 2004-2006, Geoff Broadwell; this script is released as open source and may be distributed and modified under the terms of either the Artistic License or the GNU General Public License, in the same manner as Perl itself. These licenses should have been distributed to you as part of your Perl distribution, and can be read using `perldoc perlartistic` and `perldoc perlgpl` respectively.

Rewritten in Python by Bob Free

Rewritten and extended for Tcl3D by Paul Obermeier, 2008

Type:	tcl3dOglExt		
Category:	LibrarySpecificDemos		
Root:	Contents		
This section contains OpenGL demo applications from several resources, that have been ported to Tcl3D. The examples cover OpenGL extension programming. Original sources from different sites. See the documentation for details.			
Available demos			
			
OglBenchFBO	PhotoBooth	extensions	mandelbrot



Demo:	PhotoBooth
Type:	tcl3dOglExt
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Photo Booth Effects

The application window title is "Tcl3D demo: Photo Booth Effects". Inside, there's a large grid visualization showing a radial distortion effect. On the right side, there's a configuration panel with several sections:

- Shader language:** GLSL (selected) / Cg
- Effects:** Bulge (selected), Dent, FishEye, LightTunnel, Mirror, None, Squeeze, Stretch, Twirl.
- Approximations:** Function (selected), None, Texture.
- Images:** Checker (selected), Libero, Paul.
- Actions:** Load image ..., View shader file, View shader source, Animate, Timing test ...

At the bottom left, there are two parameter sliders labeled "Parameter 1: -0.10" and "Parameter 2: 0.50". A message box at the bottom says "Using CG profile CG_PROFILE_ARBFP1 Creating approximation textures: sin/cos ... atan2 ... Done".

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

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Modified for Tcl3D by Paul Obermeier 2007/04/14
See www.tcl3d.org for the Tcl3D extension.

The demo has been modified to allow up to 2 parameters to be changed interactively via a slider.

The parameter range of the two sliders can be provided as comment lines at the top of the shader source files.

Further enhancements include:

Loading of image files of any size via the "Load image" button. All image files with an extension of .jpg or .tga in the directory of the script are automatically

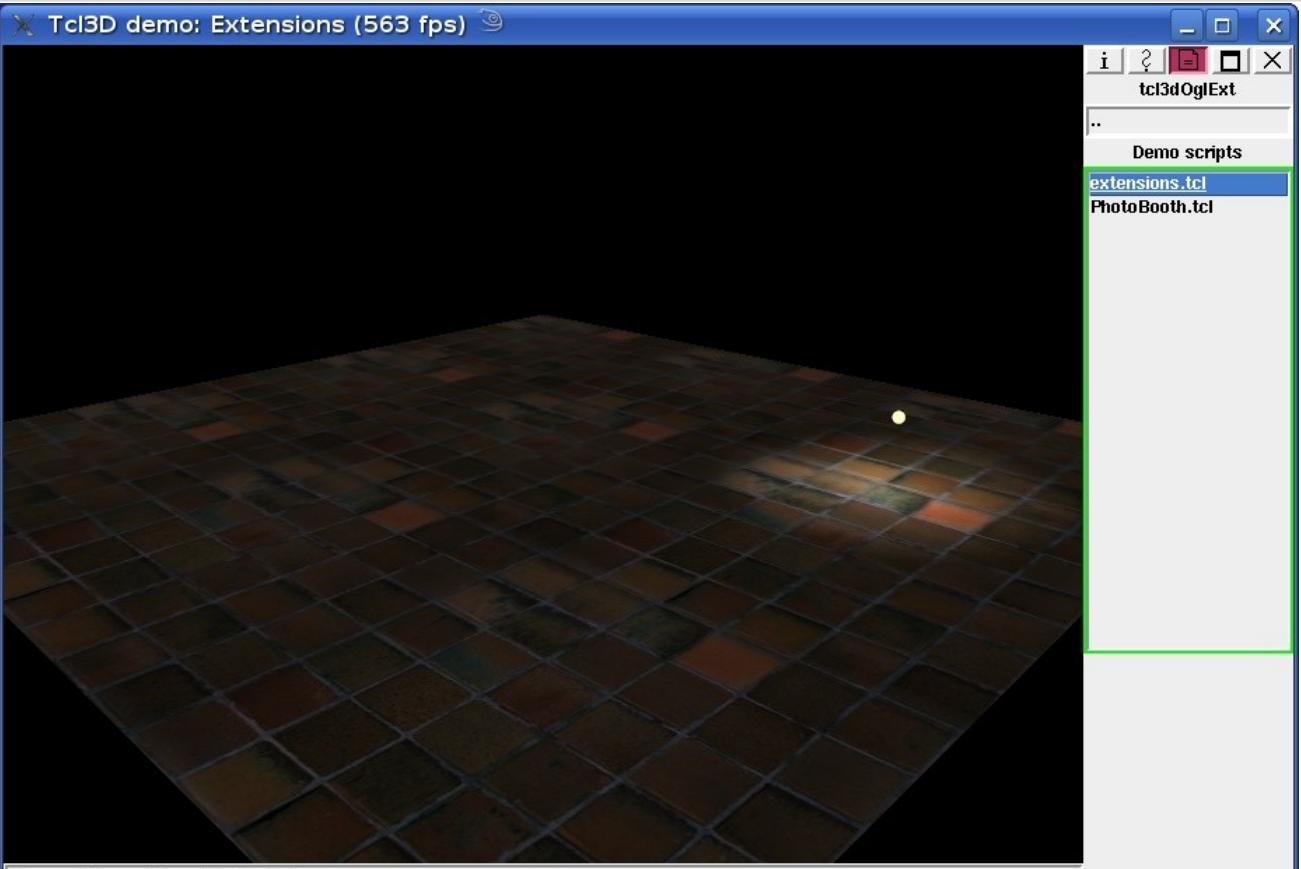
recognized and inserted into the "Images" labelframe.

Add your own shader without modifying the Tcl script by adding a new file with extension

.frag in the directory of the script.

A description of the effect shaders and the original sources are available at <http://democracy.org/libero/photobooth/>

Demo:	extensions
Type:	tcl3dOglExt
Category:	LibrarySpecificDemos
Root:	Contents



```

Mouse-L StartAnimation
Mouse-MR StopAnimation
Key-Escape Exit
ARB_multitexture EXT_point_parameters ARB_texture_compression EXT_texture_edge_clamp

```

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

extensions.tcl

Program to demonstrate the use of extensions.
 Extensions used:
 GL_ARB_multitexture
 GL_EXT_point_parameters
 GL_ARB_texture_compression
 GL_EXT_texture_edge_clamp

Original C++ code by Dave Astle 2/1/2002
 Original files from:
<http://www.gamedev.net/reference/programming/features/oglext/demo.zip>

Modified for Tcl3D by Paul Obermeier 2005/09/05
 See www.tcl3d.org for the Tcl3D extension.

Demo:	mandelbrot
Type:	tcl3dOglExt
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Mandelbrot

Texture size: 512

Iterations: 100

Center Re: -0.6

Center Im: 0.0

Box size: 3.0

Render Method: Tcl C GLSL

Coloring Method: Random Renorm

Renorm Options

Colors:

Band frequency: 0.020

Save as image

Mouse-L Zoom in
Mouse-R Step back

Running on Linux with a GeForce 8600 GTS/PCI/SSE2/3DNOW! (OpenGL 2.1.1 NVIDIA 100.14.11, Tcl 8.4.14)

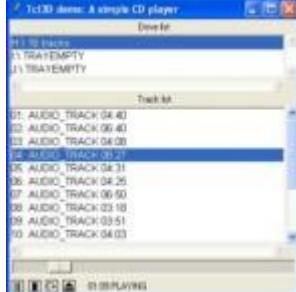
Mandelbrot shader using GPGPU techniques

Author: Gabriel Zachmann, June 2007

The code is derived from [../fbo_demo/saxpy.cpp](#)

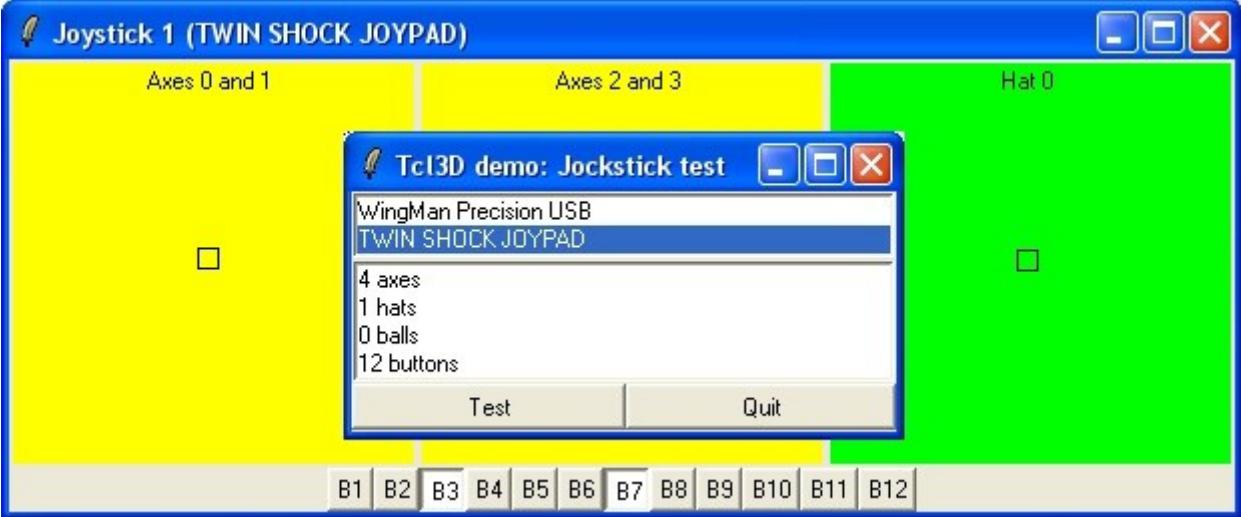
The original code can be found at:
http://zach.in.tu-clausthal.de/teaching/cg2_08/downloads/simple_glsl_demos.tar.gz

Modified and extended for Tcl3D by Paul Obermeier 2009/01/04
See www.tcl3d.org for the Tcl3D extension.

Type:	tcl3dSDL
Category:	LibrarySpecificDemos
Root:	Contents
This section contains SDL demo applications written in Tcl3D. The examples cover joystick and CD programming with the help of the SDL library.	
Available demos	
	
cdplayer	joysticktest

Demo:	cdplayer
Type:	tcl3dSDL
Category:	LibrarySpecificDemos
Root:	Contents
Copyright:	2006-2010 Paul Obermeier (obermeier@tcl3d.org)
<p>See the file "Tcl3D_License.txt" for information on usage and redistribution of this file, and for a DISCLAIMER OF ALL WARRANTIES.</p>	
Module:	Tcl3D -> tcl3dSDL
Filename:	cdplayer.tcl
Author:	Paul Obermeier
Description:	Tcl script implementing a simple CD player to test the CD related functions (SDL_CD*) of the Tcl3D SDL wrapping.

Demo:	joysticktest
Type:	tcl3dSDL
Category:	LibrarySpecificDemos
Root:	Contents



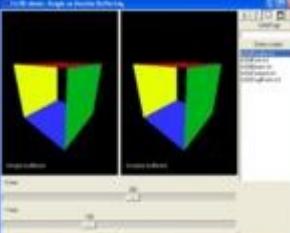
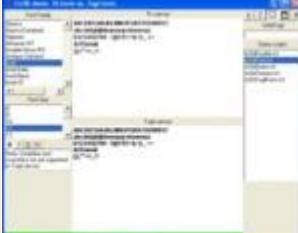
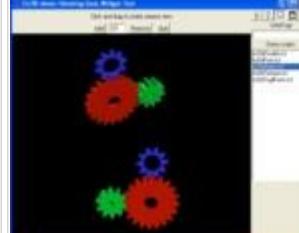
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Module: Tcl3D -> tcl3dSDL
Filename: joysticktest.tcl

Author: Paul Obermeier

Description: Tcl script to test the joystick related functions of the Tcl3D SDL wrapping.

Type:	tcl3dTogl		
Category:	LibrarySpecificDemos		
Root:	Contents		
The following demos from the Togl distribution have been ported to Tcl3D. Original sources available at: http://sourceforge.net/projects/togl/			
Available demos			
			
tcl3dDouble	tcl3dFont	tcl3dGears	tcl3dTexture
			
tcl3dToglFonts			

Demo:	tcl3dDouble
Type:	tcl3dTogl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Single vs Double Buffering

tcl3dDouble.tcl

A Tcl3D widget demo with two windows, one single buffered and the other double buffered.

This is a version of the original Togl double demo written entirely in Tcl with the help of the Tcl3D package.

Copyright (C) 1996 Brian Paul and Ben Bederson (Original C/Tcl version)
 Copyright (C) 2005 Paul Obermeier (Tcl3D version)
 See the LICENSE file for copyright details.

Original sources available at: <http://sourceforge.net/projects/togl/>

Demo:	tcl3dFont
Type:	tcl3dTogl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Tk fonts vs. Togl fonts

The screenshot shows a window titled "Tcl3D demo: Tk fonts vs. Togl fonts". On the left, there's a font selection panel with a list of font families (Alaska, Alaska Extrabold, Algerian, Almanac MT, Andale Mono IPA, Antique Oakland, Arial, Arial Baltic, Arial Black, Arial CE) and a font size dropdown set to 12. Below the font selection are buttons for bold (B), italic (I), underline (U), and overstrike (O). A note states: "Note: Underline and overstrike not yet supported in Togl canvas." In the center, there are two text areas labeled "Tk canvas" and "Togl canvas", both displaying the same text: "ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789~!@#\$%^&()_-+=ÄÖÜäöüßÖ;""<,,?/".

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Module: Tcl3D -> tcl3dTogl
Filename: tcl3dFont.tcl

Author: Paul Obermeier

Description: Tcl script to select a font. The font is displayed in a Tk widget as well as in an OpenGL window. The font name in XLFN notation is shown in a text widget for copy/paste. This demo shows the usage of the "loadbitmapfont" command built into the Togl widget. Note: The Tk font might look nicer, because font antialiasing is enabled. On Windows this can be toggled in the display property window (Appearance->Effects).

Demo:	tcl3dGears
Type:	tcl3dTogl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Rotating Gear Widget Test

tcl3dGears.tcl

Test Togl using GL Gears Demo

This is a version of the original Togl gears demo written entirely in Tcl with the help of the Tcl3D package.

Copyright (C) 1997 Philip Quaife (Original C/Tcl version)
 Copyright (C) 2005 Paul Obermeier (Tcl3D version)
 See the LICENSE file for copyright details.

Original sources available at: <http://sourceforge.net/projects/togl/>

Demo:	tcl3dTexture
Type:	tcl3dTogl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Texture Map Options

The demo window displays a 3D rendering of a green tree on a blue surface. On the left, there's a control panel with dropdown menus for texture coordinates and wrap modes. In the center, there are options for magnification and minification filters, and sliders for polygon colors (Red, Green, Blue) set to 255. A status bar at the bottom shows the file path: tcl3dTexture.tcl.

tcl3dTexture.tcl

Togl texture map demo

This is a version of the original Togl texture demo written entirely in Tcl with the help of the Tcl3D package.

Copyright (C) 1996 Brian Paul and Ben Bederson (Original C/Tcl version)
 Copyright (C) 2005 Paul Obermeier (Tcl3D version)
 See the LICENSE file for copyright details.

Original sources available at: <http://sourceforge.net/projects/togl/>

Demo:	tcl3dToglFonts
Type:	tcl3dTogl
Category:	LibrarySpecificDemos
Root:	Contents

Tcl3D demo: Togl bitmap font specification examples

```

loadbitmapfont
loadbitmapfont -family courier
loadbitmapfont -family times
loadbitmapfont -family fixed -size 12 -weight medium -slant regular
loadbitmapfont -family fixed -size 12 -weight bold -slant italic
loadbitmapfont -slant xyz
loadbitmapfont -weight xyz
loadbitmapfont -size 20
loadbitmapfont -size 20 -weight bold
loadbitmapfont -size 20 -slant italic
loadbitmapfont -**courier-bold-r-----10-----*
loadbitmapfont -family 8x13
loadbitmapfont 8x13
loadbitmapfont -family a-b
loadbitmapfont a-b
loadbitmapfont -family
loadbitmapfont -family -weight -slant (Could not allocate font "-weight")
loadbitmapfont -unknownoption (Could not allocate font "-unknownoption")

```

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16)

Copyright: 2006-2010 Paul Obermeier (obermeier@tcl3d.org)

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Module: Tcl3D -> tcl3dTogl
 Filename: tcl3dToglFonts.tcl

Author: Paul Obermeier

Description: Program demonstrating and testing the different possibilities of specifying a bitmap font for the Togl widget.

Category:	Tcl3DSpecificDemos
Root:	Contents
Types:	

Demo:	bytearray
Type:	
Category:	Tcl3DSpecificDemos
Root:	Contents

Tcl3D demo: Creating textures from byte arrays (Test 5)

Key-1: Gradient with `tcl3dVector` (slow)
 Key-2: Gradient with `tcl3dVectorFromByteArray` (fast)
 Key-3: Gradient with `tcl3dVectorFromByteArray` (faster)
 Key-4: Gradient with `tcl3dVectorFromByteArray` (fastest)
 Key-5: Color gradient with `tcl3dVectorFromByteArray`
 Key-6: Gradient readback with `tcl3dVectorToByteArray`
 Key-Escape: Exit

27502 microseconds per iteration
 Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

bytearray.tcl

Tcl3D demo showing the use of the `tcl3dByteArray2Vector` function, introduced in Version 0.3.
 The program texture maps an image generated with Tcl onto a quad.

Author: Paul Obermeier
 Date: 2006-02-01

Demo:	checkerBoard
Type:	
Category:	Tcl3DSpecificDemos
Root:	Contents

Tcl3D demo: Texture generation comparison

```

checkerBoard.tcl

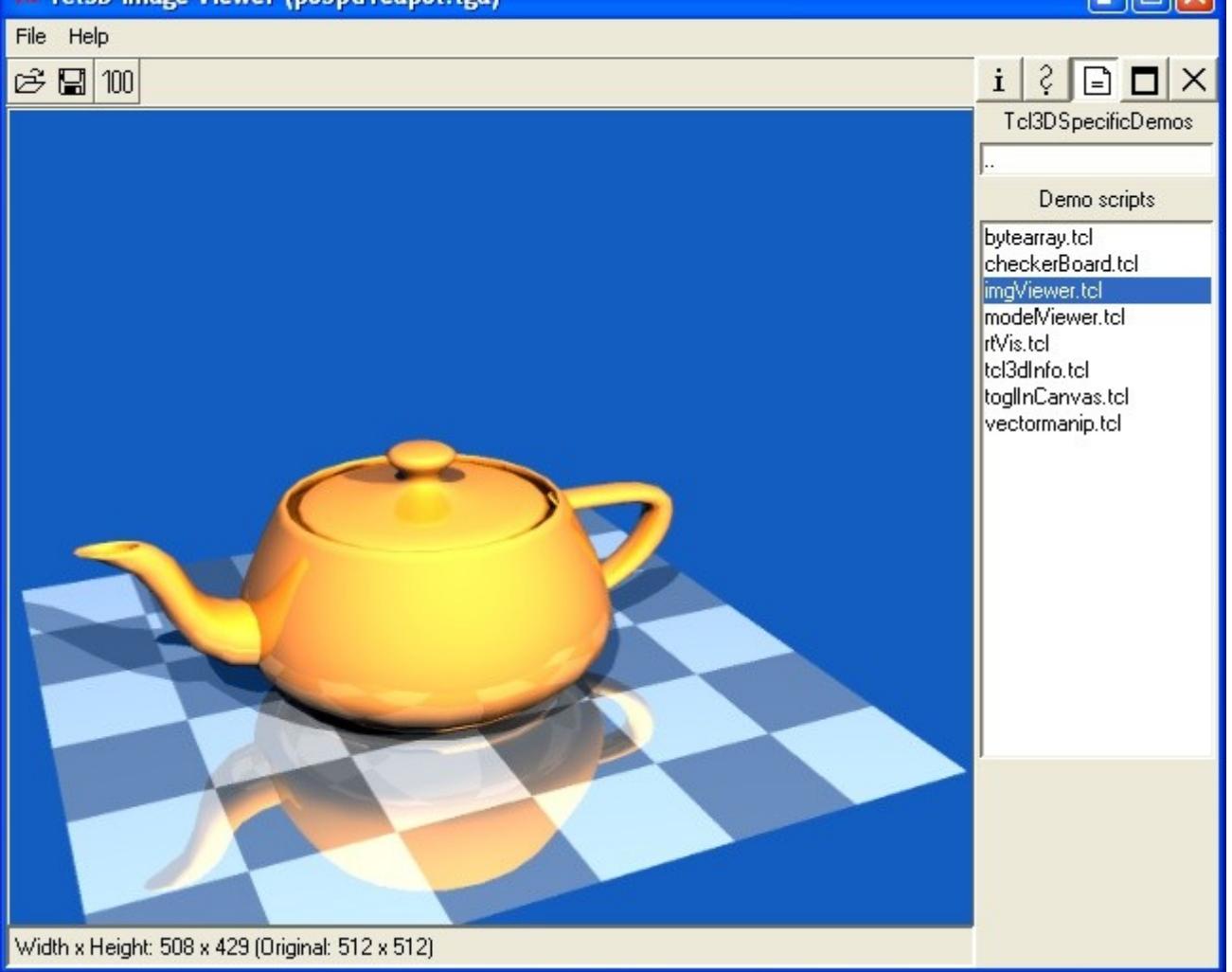
This program creates a checkerboard image in two ways.
The first texture is created with an algorithm, as used in some of the
RedBook examples (ex. checker.tcl). This algorithm has been converted 1:1
from C to Tcl. Very slow.
The second image is created using the Img extension, which is essentially
faster.

Author: Paul Obermeier
Date: 2006-09-22

```

Demo:	imgViewer
Type:	
Category:	Tcl3DSpecificDemos
Root:	Contents

Tcl3D Image Viewer (poSpdTeapot.tga)



The screenshot shows a 3D rendering of a yellow teapot with a lid, positioned on a blue and white checkered surface. The background is a solid blue. On the right side of the window, there is a sidebar titled "Tcl3DSpecificDemos" which lists several demo scripts: bytearray.tcl, checkerBoard.tcl, imgViewer.tcl (which is selected), modeViewer.tcl, rtVis.tcl, tcl3dInfo.tcl, togInCanvas.tcl, and vectormanip.tcl.

Width x Height: 508 x 429 (Original: 512 x 512)

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Module: Tcl3D
 Filename: imgViewer.tcl

Author: Paul Obermeier

Description: Tcl program to display images and stretch them in realtime with the use of OpenGL textures.
 The images can be read from files in all formats supported by the Img extension. The stretched image may also be written out to an image file.

Demo:	modelViewer
Type:	
Category:	Tcl3DSpecificDemos
Root:	Contents

Tcl3D Model Viewer (al.obj)

File Edit View Help

i ?  X

Tcl3DSpecificDemos

..

Demo scripts

bytearray.tcl
checkerBoard.tcl
gluShapes.tcl
imgViewer.tcl
modelViewer.tcl
tcl3dInfo.tcl
toglInCanvas.tcl
vectorManip.tcl

Size (x,y,z): (5.42, 5.89, 2.22)

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Module: Tcl3D
Filename: modelViewer.tcl

Author: Paul Obermeier

Description: Tcl program to display 3D model files in all formats supported by the Tcl3D extension.

Demo:	oglmodes
Type:	
Category:	Tcl3DSpecificDemos
Root:	Contents

Tcl3D demo: OpenGL execution modes

Execution modes Settings Commands

Normal Safe Debug Call glEndTransformFeedback Clear Show Step Animate

```

glEnd
glLoadIdentity
glTranslatef 1.5 0.0 -6.0
glRotatef -196.5 1.0 0.0 0.0
glColor3f 0.5 0.5 1.0
glBegin GL_QUADS
glVertex3f -1.0 1.0 0.0
glVertex3f 1.0 1.0 0.0
glVertex3f 1.0 -1.0 0.0
glVertex3f -1.0 -1.0 0.0
glEnd

```

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16)

oglmodes.tcl

Tcl3D demo showing 3 possible modes of OpenGL execution:

Normal mode: Use the OpenGL functions as wrapped by SWIG.
This is the fastest mode. If using an OpenGL function not available in the used driver implementation, this mode will dump core.

Safe mode: In this mode every OpenGL function is checked for availability in the driver before execution.
If it's not available, a message is printed out.

Debug mode: This mode checks the availability of an OpenGL function like the safe mode, and additionally prints out each OpenGL function before execution.

The program allows to insert an unavailable command in the display callback to see the impact on execution. Currently this command is set to "glEndTransformFeedback", which is an OpenGL 3.0 feature and therefore should not be available in most driver implementations currently in the wild.

Author: Paul Obermeier

Date: 2009-01-10

Demo:	rtVis
Type:	
Category:	Tcl3DSpecificDemos
Root:	Contents

Tcl3D demo: Ray-Tracing visualization

The application window title is "Tcl3D demo: Ray-Tracing visualization". The main area shows a 3D scene with a yellow teapot inside a wireframe cube. The interface includes a toolbar with buttons for "CoR: Origin" (radio button), "CoR: Geometry" (radio button), "Load script ...", and other icons. A list of "Demo scripts" is shown on the right, including: bytearray.tcl, checkerBoard.tcl, imgViewer.tcl, modeViewer.tcl, rtVis.tcl, tcl3dInfo.tcl, togInCanvas.tcl, and vectormanip.tcl. The "rtVis.tcl" script is highlighted. Below the toolbar, there are several checkboxes for visibility settings: "Show rays", "Primary", "Reflected", "Shadow", "Show geometry", "Static", "Dynamic", "Lines", "Show lightsources", "Lines", "Show acc. structures", and "Lines". A dropdown menu lists "Octree", "BVH", and "KD-Tree". Below that is a "Levels" section with checkboxes for levels 1 through 15. At the bottom, an "Output messages" window displays the following text:

```
KD-Tree tree level 17 has 1194 cells
KD-Tree tree level 18 has 1328 cells
KD-Tree tree level 19 has 1421 cells
KD-Tree tree level 20 has 1525 cells
KD-Tree tree level 21 has 1657 cells
KD-Tree tree level 22 has 1670 cells
KD-Tree tree level 23 has 1672 cells
KD-Tree tree level 24 has 1579 cells
KD-Tree tree total number of cells: 15984
```

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16)

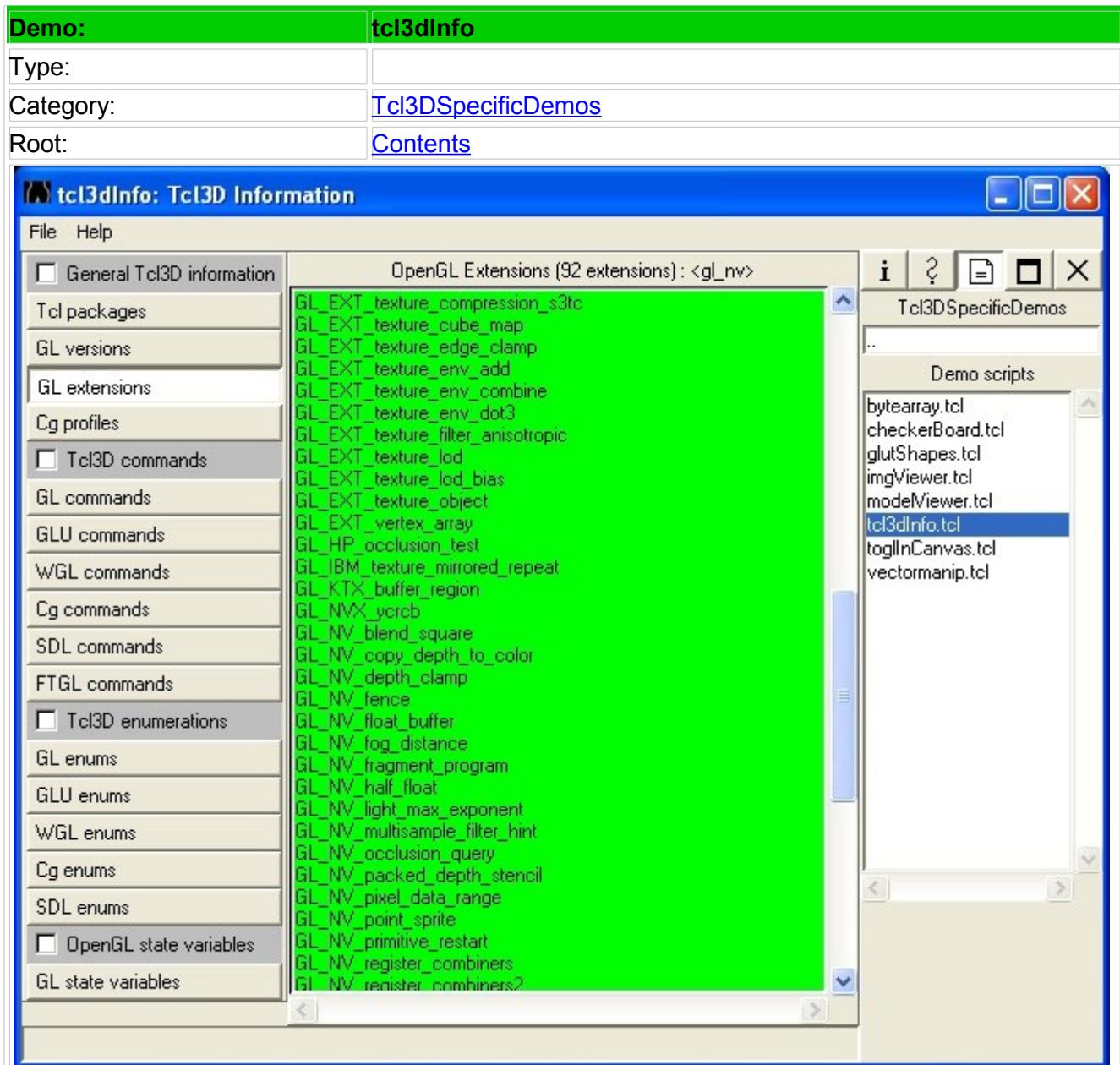
Copyright: 2008-2010 Paul Obermeier (obermeier@tcl3d.org)

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Module: Tcl3DSpecificDemos
Filename: rtVis.tcl

Author: Paul Obermeier

Description: Ray Tracing visualization program.
The comments of the rtvis* procedures explain how to use the ray-tracing visualization commands.



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Module: Tcl3D
Filename: tcl3dInfo.tcl

Author: Paul Obermeier

Description: Tcl script to display OpenGL related information.
When called without arguments, a window is opened with buttons to display OpenGL information for the following categories:

- General information (-info)
- Available OpenGL commands in Tcl (-cmd)
- Available OpenGL enumerations in Tcl (-enum)

The information texts can also be printed to stdout without opening a GUI, if calling this Tcl script with any of the above listed command line options.

To display all four categories, the option "-all" can be used.

Note: To retrieve all necessary information, an OpenGL context has to be established. So the batch mode needs a DISPLAY, too.

Demo:	toglInCanvas
Type:	
Category:	Tcl3DSpecificDemos
Root:	Contents

Tcl3D demo: Togl window in canvas

This is the canvas background

Key-Escape Exit
Mouse-1|2 Start|Stop animation
Button Move Togl window

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

toglInCanvas.tcl

Tcl3D demo using a Togl window and some button widgets inserted into a canvas.

Author: Paul Obermeier
Date: 2006-12-08

Demo:	vectormanip
Type:	
Category:	Tcl3DSpecificDemos
Root:	Contents

Tcl3D demo: Manipulating image vectors (Test 5)

Key-1:	Copy: Dest(bw) = Src(bw)
Key-2:	Copy: Dest(r,g,b) = Src(r,g,b)
Key-3:	Manip: Dest(bw) = -1 * Src(bw) + 255
Key-4:	Manip: Dest(r,g,b) = -1 * Src(r,g,b) + 255
Key-5:	Swap : Dest(r,g,b) = Src(g,r,b)
Key-Escape:	Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

vectormanip.tcl

Tcl3D demo showing the use of the Vector manipulation functions, introduced in Version 0.3.2.

The program texture maps an image generated with Tcl (the source) onto the left quad. The source texture is manipulated with the vector functions according to the chosen method and mapped onto the right quad.

See functions execMethod? below.

Author: Paul Obermeier
Date: 2006-08-15

Category:	TutorialsAndBooks
Root:	Contents
Types:	CodeSampler GameProgrammer NeHe RedBook

Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents
Several demo applications from Kevin Harris' page have been ported to Tcl3D. The examples cover Cg, OpenGL extension programming.	
Original sources available at: http://www.codesampler.com/oglsrc.htm	
Available demos	
ogl_alpha_blending_framebuffer	ogl_alpha_blending_texture
ogl_axis_aligned_billboard	ogl_benchmark
ogl_cg_multitexture	ogl_color_tracking
ogl_fps_controls	ogl_frame_buffer
ogl_glslang_simple_vs2ps	ogl_lighting
ogl_material	ogl_multitexture_1
ogl_near_far_clip	ogl_occlusion_query
ogl_planar_shadow	ogl_point_rotated
ogl_point_sprites	ogl_polygon_offset
ogl_skinning	ogl_texture_add



[ogl_vertex_displacement](#)

[oglu_projtexture](#)

Demo:	ogl_alpha_blending_framebuffer
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Alpha Blending with the Frame Buffer

Code Sampler

..

Demo scripts

- ogl_alpha_blending_fra...
- ogl_alpha_blending_text...
- ogl_axis_aligned_billbo...
- ogl_benchmark_sphere...
- ogl_cg_multitexture.tcl
- ogl_color_tracking.tcl
- ogl_fps_controls.tcl
- ogl_frame_buffer_object...
- ogl_glslang_simple_vs2...
- ogl_lighting.tcl
- ogl_material.tcl
- ogl_multitexture_blendir...
- ogl_near_far_clip.tcl
- ogl_occlusion_query.tcl
- ogl_planar_shadow.tcl
- ogl_point_rotated_billbo...
- ogl_point_sprites.tcl
- ogl_polygon_offset.tcl
- ogl_skinning.tcl
- ogl_texture_addressing...

Key-Escape Exit
Key-s Start|Stop Animation
Key-b Toggle blending

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_alpha_blending_framebuffer.cpp
Author: Kevin Harris (kevin@codesampler.com)
Last Modified: 03/25/05
Description: This sample demonstrates how to perform alpha-blending in the frame-buffer. The sample renders a textured cube which is alpha-blended into the frame-buffer in such a way as to create a translucent effect.

Control Keys: b - Toggle blending

Original C++ code by Kevin Harris (kevin@codesampler.com)
See www.codesampler.com for the original files
OpenGL samples page 4: Alpha Blending in the Frame buffer
http://www.codesampler.com/oglsrc/oglsrc_4.htm#ogl_alpha_blending_framebuffer

Modified for Tcl3D by Paul Obermeier 2008/05/01
See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_alpha_blending_texture
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Texture Alpha Blending

Code Sampler

Demo scripts

- [ogl_alpha_blending_fran](#)
- [ogl_alpha_blending_text](#)
- [ogl_axis_aligned_billbo](#)
- [ogl_benchmark_sphere.](#)
- [ogl_cg_multitexture.tcl](#)
- [ogl_color_tracking.tcl](#)
- [ogl_fps_controls.tcl](#)
- [ogl_frame_buffer_objec](#)
- [ogl_glslang_simple_vs2|](#)
- [ogl_lighting.tcl](#)
- [ogl_material.tcl](#)
- [ogl_multitexture_blendir](#)
- [ogl_near_far_clip.tcl](#)
- [ogl_occlusion_query.tcl](#)
- [ogl_planar_shadow.tcl](#)
- [ogl_point_rotated_billbo](#)
- [ogl_point_sprites.tcl](#)
- [ogl_polygon_offset.tcl](#)
- [ogl_skinning.tcl](#)
- [ogl_texture_addressing.](#)

Key-Escape Exit
 Key-b Toggle blending
 Key-s Toggle cull mode trick
 Key-Up Increase distance
 Key-Down Decrease distance
 Mouse-L Rotate cube

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_alpha_blending_texture.cpp
 Author: Kevin Harris (kevin@codesampler.com)
 Last Modified: 03/25/05
 Description: This sample demonstrates how to perform alpha blending using the alpha channel of a standard .tga texture. For proper alpha blending, the sample uses a cull-mode sorting trick to ensure the sides of the textured cube get rendered in back-to-front order.

Control Keys: b - Toggle blending
 s - Toggle usage of cull-mode sorting trick
 Up Arrow - Move the test cube closer
 Down Arrow - Move the test cube away

Original C++ code by Kevin Harris (kevin@codesampler.com)
 See www.codesampler.com for the original files
 OpenGL samples page 3: Alpha Texture Blending
http://www.codesampler.com/oglsrc/oglsrc_3.htm#ogl_alpha_blending_texture

Modified for Tcl3D by Paul Obermeier 2008/05/01
 See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_axis_aligned_billboard
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Axis Aligned Billboard

The window title is "Tcl3D demo: CodeSampler's Axis Aligned Billboard". The menu bar includes "File", "Edit", "View", "Help", and "Code Sampler". A toolbar has icons for "New", "Open", "Save", "Print", and "Exit". The main area shows a 3D scene with a red maple tree on a green hill under a blue sky. To the right is a list of "Demo scripts" including ogl_alpha_blending_fran, ogl_alpha_blending_text, ogl_axis_aligned_billboard, ogl_benchmark_sphere, ogl_cg_multitexture.tcl, ogl_color_tracking.tcl, ogl_fps_controls.tcl, ogl_frame_buffer_object, ogl_glslang_simple_vs2, ogl_lighting.tcl, ogl_material.tcl, ogl_multitexture_blendir, ogl_near_far_clip.tcl, ogl_occlusion_query.tcl, ogl_planar_shadow.tcl, ogl_point_rotated_billboard, ogl_point_sprites.tcl, ogl_polygon_offset.tcl, ogl_skinning.tcl, and ogl_texture_addressing.tcl.

Key-Escape Exit
 Key-F1 Toggle billboarding
 Key-Up|Down View moves forward|backward
 Key-Left|Down View strafes to the left|right
 Key-Home|End View elevates up|down
 Billboarding is on

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_axis_aligned_billboard.cpp
 Author: Kevin Harris (kevin@codesampler.com)
 Last Modified: 02/01/05
 Description: An example of axis aligned billboarding.

Control Keys:

F1	- Toggle billboarding
Up	- View moves forward
Down	- View moves backward
Left	- View strafes left
Right	- View strafes Right
Left Mouse	- Perform looking
Mouse	- Look about the scene

Original C++ code by Kevin Harris (kevin@codesampler.com)
 See www.codesampler.com for the original files
 OpenGL samples page 8: Axis-Aligned Billboards

Modified for Tcl3D by Paul Obermeier 2007/03/10
 See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_benchmark_sphere
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Benchmarking Test App

The window title bar says "Tcl3D demo: CodeSampler's Benchmarking Test App". The menu bar includes "File", "Edit", "View", "Help", and "Code Sampler". The main area shows the sphere. A scrollable list on the right side is titled "Demo scripts" and contains a long list of files, with "ogl_benchmark_sphere.tcl" highlighted.

```

Key-Escape Exit
Key-F1 | F2 Decrease| Increase sphere precision.
Key-F3 Use Immediate mode calling C.
Key-F8 Use Immediate mode calling Tcl.
Key-F4 Use a Display List.
Key-F5 Use a Vertex Array.
Key-F6 Start benchmark.
Key-s Stop running benchmark.
Key-F7 Toggle wireframe mode.

```

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_benchmark_sphere.cpp
 Author: Kevin Harris (kevin@codesampler.com)
 Last Modified: 04/21/05
 Description: Renders a textured sphere using either Immediate Mode calls,
 Immediate Mode calls cached in a Display List, or as a
 collection of geometric data stored in an interleaved
 fashion within a Vertex Array.

Control Keys: Left Mouse Button - Spin the view.
 F1 - Decrease sphere precision.
 F2 - Increase sphere precision.
 F3 - Use Immediate mode
 F4 - Use a Display List
 F5 - Use a Vertex Array
 F6 - Perform Benchmarking
 F7 - Toggle wire-frame mode.

Original C++ code by Kevin Harris (kevin@codesampler.com)
 See www.codesampler.com for the original files
 OpenGL samples page 9: Benchmarking Test App

Modified for Tcl3D by Paul Obermeier 2005/11/07
See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_cg_multitexture
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

X Tcl3D demo: CodeSampler's Multi-Texturing Using Cg

Code Sampler

Demo scripts

- ogl_alpha_blending_fran
- ogl_alpha_blending_text
- ogl_axis_aligned_billboard
- ogl_benchmark_sphere
- ogl_cg_multitexture.tcl**
- ogl_color_tracking.tcl
- ogl_fps_controls.tcl
- ogl_frame_buffer_object
- ogl_glslang_simple_vs2
- ogl_lighting.tcl
- ogl_material.tcl
- ogl_multitexture_blenddir
- ogl_near_far_clip.tcl
- ogl_occlusion_query.tcl
- ogl_planar_shadow.tcl
- ogl_point_rotated_billboard
- ogl_point_sprites.tcl
- ogl_polygon_offset.tcl
- ogl_skinning.tcl
- ogl_texture_addressing

▼ Cg Semantics ♦ OpenGL Semantics [View shader file](#)

Profile: CG_PROFILE_ARBFP1 File: ogl_cg_multitexture-gl.cg

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_cg_multitexture.cpp
 Author: Kevin Harris
 Last Modified: 04/26/05
 Description: This sample demonstrates how to blend two textures together with Cg using either OpenGL's native multi-texture support (using semantics) or by using Cg's special texture functions: cgGLSetTextureParameter, cgGLEnableTextureParameter, and cgGLDisableTextureParameter.

Original C++ code by Kevin Harris (kevin@codesampler.com)
 See www.codesampler.com for the original files
 OpenGL samples page 10: Multi-Texturing with Cg

Modified for Tcl3D by Paul Obermeier 2007/05/22
 See www.tcl3d.org for the Tcl3D extension.

The original demo has been extended with a little GUI to allow switching between the two call semantics at runtime.
 To visualize, that a different shader program is active, the OpenGL semantics shader adds only half of the checker image color.

Demo:	ogl_color_tracking
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Color Tracking And Two-Sided Lighting

Key-Escape Exit
 Key-C Toggle color tracking
 Key-L Toggle two sided lighting
 Mouse-L Rotate quad

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_color_tracking.cpp
 Author: Kevin Harris (kevin@codesampler.com)
 Last Modified: 04/28/05
 Description: This sample demonstrates color-tracking and two-sided lighting in OpenGL.

Color tracking allows us to substitute the color of our vertices for one or more of the material colors used by OpenGL's lighting equation. This feature is typically not used much anymore as since modelers today use textures to color their geometry - not vertex colors. Of course, this technique is alive and kicking in a billion lines of legacy code so it's good to understand this technique just in case you run across it.

Two-sided lighting basically means that we want OpenGL to light both sides of our geometry instead of just the front faces. Again, this feature is typically not used much anymore since it's very inefficient to light both sides of every triangle but there are some cases where this is helpful to know.

Control Keys: c - Toggle between a material color or color tracking the vertices
l - Toggle two-sided lighting

Original C++ code by Kevin Harris (kevin@codesampler.com)
See www.codesampler.com for the original files
OpenGL samples page 5: Color Tracking and Two-Sided lighting
http://www.codesampler.com/oglsrc/oglsrc_5.htm#ogl_color_tracking

Modified for Tcl3D by Paul Obermeier 2008/05/01
See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_fps_controls
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's First Person Shooter Controls

The right side of the window contains a list of "Demo scripts" with the file "ogl_fps_controls.tcl" highlighted by a green selection bar.

Key-Stroke

- Key-Escape Exit
- Key-Up|Down View moves forward|backward
- Key-Left|Right View strafes to the left|right
- Key-Home|End View elevates up|down

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_fps_controls.cpp
 Author: Kevin Harris (kevin@codesampler.com)
 Last Modified: 02/01/05
 Description: This sample demonstrates how to collect user input and build a custom view matrix for First Person Shooter style controls.

Control Keys:

Up	- View moves forward
Down	- View moves backward
Left	- View strafes left
Right	- View strafes Right
Left Mouse	- Perform looking
Mouse	- Look about the scene
Home	- View moves up
End	- View moves down

Original C++ code by Kevin Harris (kevin@codesampler.com)
 See www.codesampler.com for the original files
 OpenGL samples page 5: First Person Shooter Controls

Modified for Tcl3D by Paul Obermeier 2005/11/05

See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_frame_buffer_object
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

X Tcl3D demo: CodeSampler's Off-Screen Rendering Using Frame Buffer Obj _ □ ×

Key-Escape Exit
Mouse-L Rotate outer cube
Mouse-MR Rotate inner cube

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_frame_buffer_object.cpp
Author: Kevin Harris (kevin@codesampler.com)
Last Modified: 07/06/05

Description: This sample demonstrates how to create dynamic textures through off-screen rendering. The off-screen rendering step is accomplished using a frame-buffer and render-buffer object, which is created using OpenGL's EXT_framebuffer_object extension.

As a demonstration, a spinning textured cube is rendered to a frame-buffer object, which is in turn, used to create a dynamic texture. The dynamic texture is then used to texture a second spinning cube, which will be rendered to the application's window.

Control Keys: Left Mouse Button - Spin the large, black cube.
Right Mouse Button - Spin the textured cube being rendered into the p-buffer.

Note: The EXT_framebuffer_object extension is an excellent replacement for

the WGL_ARB_pbuffer and WGL_ARB_render_texture combo which is normally used to create dynamic textures. An example of this older technique can be found here:

http://www.codesampler.com/oglsrc/oglsrc_7.htm#ogl_offscreen_rendering

Original C++ code by Kevin Harris (kevin@codesampler.com)

See www.codesampler.com for the original files

OpenGL samples page 14: Off-screen Rendering Using Frame-Buffer Objects

Modified for Tcl3D by Paul Obermeier 2007/02/25

See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_glslang_simple_vs2ps
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

X Tcl3D demo: CodeSampler's Simple vertex & fragment shader with GLSL

Code Sampler

..

Demo scripts

- [ogl_alpha_blending_fran](#)
- [ogl_alpha_blending_text](#)
- [ogl_axis_aligned_billbo](#)
- [ogl_benchmark_sphere.](#)
- [ogl_cg_multitexture.tcl](#)
- [ogl_color_tracking.tcl](#)
- [ogl_fps_controls.tcl](#)
- [ogl_frame_buffer_objec](#)
- [ogl_glslang_simple_vs2](#)
- [ogl_lighting.tcl](#)
- [ogl_material.tcl](#)
- [ogl_multitexture_blendir](#)
- [ogl_near_far_clip.tcl](#)
- [ogl_occlusion_query.tcl](#)
- [ogl_planar_shadow.tcl](#)
- [ogl_point_rotated_billbo](#)
- [ogl_point_sprites.tcl](#)
- [ogl_polygon_offset.tcl](#)
- [ogl_skinning.tcl](#)
- [ogl_texture_addressing.](#)

Key-Escape Exit
Key-F1 Toggle shaders

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_glslang_simple_vs2ps.cpp
 Author: Kevin Harris (kevin@codesampler.com)
 Last Modified: 04/21/05
 Description: This sample demonstrates how to write vertex and fragment shaders using OpenGL's new high-level shading language GLslang.

Control Keys: F1 - Toggle usage of vertex and fragment shaders.

Note: The fragment shader has been changed slightly from what the fixed-function pipeline does by default so you can see a noticeable change when toggling the shaders on and off. Instead of modulating the vertex color with the texture's texel, the fragment shader adds the two together, which causes the fragment shader to produce a brighter, washed-out image. This modification can be switched back in the fragment shader file.

Original C++ code by Kevin Harris (kevin@codesampler.com)
 See www.codesampler.com for the original files
 OpenGL samples page 10: Simple Vertex & Fragment Shader (GLslang)

Modified for Tcl3D by Paul Obermeier 2005/11/05
See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_lighting
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Lighting Demo

Code Sampler

Demo scripts

- [ogl_alpha_blending_fran](#)
- [ogl_alpha_blending_text](#)
- [ogl_axis_aligned_billbo](#)
- [ogl_benchmark_sphere.](#)
- [ogl_cg_multitexture.tcl](#)
- [ogl_color_tracking.tcl](#)
- [ogl_fps_controls.tcl](#)
- [ogl_frame_buffer_objec](#)
- [ogl_glslang_simple_vs2|](#)
- [ogl_lighting.tcl](#)
- [ogl_material.tcl](#)
- [ogl_multitexture_blendir](#)
- [ogl_near_far_clip.tcl](#)
- [ogl_occlusion_query.tcl](#)
- [ogl_planar_shadow.tcl](#)
- [ogl_point_rotated_billbo](#)
- [ogl_point_sprites.tcl](#)
- [ogl_polygon_offset.tcl](#)
- [ogl_skinning.tcl](#)
- [ogl_texture_addressing.](#)

Key-Escape Exit
 Key-s Start|Stop Animation
 Key-d Change to directional light
 Key-o Change to spot light
 Key-p Change to point light
 Key-w Toggle wireframe mode

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_lighting.cpp
 Author: Kevin Harris (kevin@codesampler.com)
 Last Modified: 02/01/05
 Description: This sample demonstrates the three basic types of lights that are available in OpenGL: directional, spot, and point.

Control Keys: l - Changes the light's type
 w - Toggles wire frame mode

Original C++ code by Kevin Harris (kevin@codesampler.com)
 See www.codesampler.com for the original files
 OpenGL samples page 5: Lighting
http://www.codesampler.com/oglsrc/oglsrc_5.htm#ogl_lighting

Modified for Tcl3D by Paul Obermeier 2008/05/01
 See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_material
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Material Demo

Key-Escape Exit
Key-C Toggle GL_COLOR_MATERIAL
Mouse-L Rotate teapots

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_material.cpp
Author: Kevin Harris (kevin@codesampler.com)
Last Modified: 04/28/05
Description: This sample demonstrates how to use materials with lighting to produce different surface effects.

Control Keys: Left Mouse Button - Spin the view

Original C++ code by Kevin Harris (kevin@codesampler.com)
See www.codesampler.com for the original files
OpenGL samples page 5: Materials
http://www.codesampler.com/oglsrc/oglsrc_5.htm#ogl_material

Modified for Tcl3D by Paul Obermeier 2008/04/28
See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_multitexture_blending
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Multi-Texture Blending

Contribution of each texture for blending:
 Contribution of Tex 0 = 0.540
 Contribution of Tex 1 = 0.130 (Inferred by the values of Tex 0 & Tex 2)
 Contribution of Tex 2 = 0.330

Key-Escape Exit
 Key-F1|F2 Increment|Decrement contribution of texture 0
 Key-F3|F4 Increment|Decrement contribution of texture 2
 Key-F5 Toggle wireframe mode
 Key-Up|Down Decrease|Increase distance

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_multitexture_blending.cpp
 Author: Kevin Harris (kevin@codesampler.com)
 Last Modified: 02/08/05
 Description: This sample demonstrates how to use the OpenGL extensions GL_ARB_multitexture and GL_ARB_texture_env_combine in conjunction with specially encoded vertex colors to blend three textures together.

This technique is very popular in terrain rendering engines which use it to blend dramatically different textures such as rock and grass together without creating a noticeable edge. For example, with three textures consisting of stone, grass, and sand you can render a mountain that blends in patches of grass and sand at its base.

Of course, while this technique remains popular as a fall-back for older hardware, shaders make this task a lot easier and are quickly becoming the preferred method for terrain texture blending.

The technique basically consists of the following steps:

Step 1: Take the desired contribution of the three textures and encode them into the vertex's color such that the RGB portion of the color controls the interpolation between texture stages 0 and 1, and the color's ALPHA controls the interpolation between texture stages 1 and 2.

Step 2: Use GL_ARB_multitexture to apply three textures simultaneously to our geometry.

Step 3: Set the first texture on texture stage 0.

Step 4: During texture stage 1, use GL_INTERPOLATE_ARB to linearly interpolate between the output of stage 0 and the texture of stage 1 with GL_SRC_COLOR (i.e. the RGB part of the color).

Step 4: During texture stage 2, use GL_INTERPOLATE_ARB to linearly interpolate between the output of stage 1 and the texture of stage 2 with GL_SRC_ALPHA (i.e. the ALPHA part of the color).

Control Keys:	F1	- Increase contribution of texture 0
	F2	- Decrease contribution of texture 0
	F3	- Increase contribution of texture 2
	F4	- Decrease contribution of texture 2
	F5	- Toggle wire-frame mode.
	Up	- View moves forward
	Down	- View moves backward

Note: I tried to create an intuitive way to set the contribution of each texture at run-time using the function keys, but this system is still a little confusing since I only allow the contribution of texture 0 and texture 2 to be adjusted. This is due to the fact that the equation for encoding the blending info into the vertex color simply infers the contribution value of texture 1 based on the values for textures 0 and 2. Therefore, the contribution value of texture 1 must be indirectly set by adjusting the contributions of textures 0 and 2.

Original C++ code by Kevin Harris (kevin@codesampler.com)
 See www.codesampler.com for the original files
 OpenGL samples page 4: Multi-Texture Blending

Modified for Tcl3D by Paul Obermeier 2007/03/10
 See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_near_far_clip
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Near/Far Clip Plane

The window title is "Tcl3D demo: CodeSampler's Near/Far Clip Plane". The menu bar includes "Code Sampler" and "Demo scripts". The "Demo scripts" list contains several OpenGL sample files, with "ogl_near_far_clip.tcl" highlighted.

Key-Stroke

- Key-Escape Exit
- Key-F1 | F2 Increase|Decrease near clip plane
- Key-F3 | F4 Increase|Decrease far clip plane
- Key-Up | Down View moves forward|backward
- Key-Left | Right View strafes to the left|right
- Key-Home | End View elevates up|down

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_near_far_clip.cpp
 Author: Kevin Harris (kevin@codesampler.com)
 Last Modified: 02/01/05
 Description: This sample demonstrates how adjustments to OpenGL's near and far clip planes effect the view.

Control Keys:

Up	- View moves forward
Down	- View moves backward
Left	- View strafes left
Right	- View strafes Right
Left Mouse	- Perform looking
Mouse	- Look about the scene
F1	- Increase near clip value
F2	- Decrease near clip value
F3	- Increase far clip value
F4	- Decrease far clip value

Original C++ code by Kevin Harris (kevin@codesampler.com)
 See www.codesampler.com for the original files
 OpenGL samples page 2: Near/Far Clipping Plane

Modified for Tcl3D by Paul Obermeier 2007/03/10
See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_occlusion_query
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

X Tcl3D demo: CodeSampler's Occlusion Query using the ARB extension

Plane Fragments = 25373
Sphere Fragments = 22019

i ? Code Sampler .. Demo scripts

ogl_axis_aligned_billboard.tcl
ogl_benchmark_sphere.tcl
ogl_cg_multitexture.tcl
ogl_color_tracking.tcl
ogl_fps_controls.tcl
ogl_frame_buffer_object.tcl
ogl_glslang_simple_vs2.tcl
ogl_lighting.tcl
ogl_material.tcl
ogl_multitexture_blendir.tcl
ogl_near_far_clip.tcl
ogl_occlusion_query.tcl
ogl_planar_shadow.tcl
ogl_point_rotated_billboard.tcl
ogl_point_sprites.tcl
ogl_polygon_offset.tcl
ogl_skinning.tcl
ogl_texture_addressing.tcl
ogl_vertex_displacement.tcl
oglu_projtexture.tcl

Key-Escape Exit

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_occlusion_query_arb.cpp
Author: Kevin Harris (kevin@codesampler.com)
Last Modified: 02/01/05
Description: This sample demonstrates how to use OpenGL's new extension, ARB_occlusion_query and NV_occlusion_query.

Control Keys: Left Mouse Button - Spin the view

Original C++ code by Kevin Harris (kevin@codesampler.com)
See www.codesampler.com for the original files
OpenGL samples page 7: Occlusion Query

Modified for Tcl3D by Paul Obermeier 2007/03/10
See www.tcl3d.org for the Tcl3D extension.

This sample integrates ARB_occlusion_query and NV_occlusion_query code into one file.
If called with no command line arguments, it uses the ARB_occlusion_query extension.
Use "nv" as parameter to use the NV_occlusion_query extension.

Demo:	ogl_planar_shadow
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Planar Shadows

The screenshot shows a 3D rendering of a teapot floating above a grey rectangular plane. A dark grey elliptical shadow is cast onto the plane from the teapot. The background is a solid blue. On the right side of the window, there is a sidebar titled "Demo scripts" containing a list of files, with "ogl_planar_shadow.tcl" highlighted. At the bottom left, a key binding table lists various keyboard and mouse controls. The bottom status bar indicates the demo is running on Linux with a GeForce FX Go5600/AGP/SSE2 setup.

Key-Escape Exit
Key-Up Down Move light up down
Key-Left Right Move light left right
Key-s Toggle stencil usage
Mouse-L Spin the view
Mouse-MR Spin the teapot
Stencil is ON

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_planar_shadow.cpp
 Author: Kevin Harris (kevin@codesampler.com)
 Last Modified: 02/01/05
 Description: This sample demonstrates how to create planar shadows under OpenGL.

Planar shadows are created by building a special projection matrix which flattens an object's geometry into a plane when rendered.

If the plane, which the geometry is flattened into, matches up with another planar surface like a floor or a wall, the flattened geometry can be made to resemble a shadow on that surface.

Control Keys: Up - Light moves up
 Down - Light moves down
 Left - Light moves left
 Right - Light moves right

Left Mouse Button - Spin the view
 Right Mouse Button - Spin the teapot

Original C++ code by Kevin Harris (kevin@codesampler.com)
See www.codesampler.com for the original files
OpenGL samples page 7: Planar Shadows
http://www.codesampler.com/oglsrc/oglsrc_7.htm#ogl_planar_shadow

Modified for Tcl3D by Paul Obermeier 2008/05/02
See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_point_rotated_billboard
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Point Rotated Billboard

Demo scripts

- [ogl_axis_aligned_billboard.tcl](#)
- [ogl_benchmark_sphere.tcl](#)
- [ogl_cg_multitexture.tcl](#)
- [ogl_color_tracking.tcl](#)
- [ogl_fps_controls.tcl](#)
- [ogl_frame_buffer_object.tcl](#)
- [ogl_glslang_simple_vs2.tcl](#)
- [ogl_lighting.tcl](#)
- [ogl_material.tcl](#)
- [ogl_multitexture_blendir.tcl](#)
- [ogl_near_far_clip.tcl](#)
- [ogl_occlusion_query.tcl](#)
- [ogl_planar_shadow.tcl](#)
- [ogl_point_rotated_billboard.tcl](#)
- [ogl_point_sprites.tcl](#)
- [ogl_polygon_offset.tcl](#)
- [ogl_skinning.tcl](#)
- [ogl_texture_addressing.tcl](#)
- [ogl_vertex_displacement.tcl](#)
- [oglu_projtexture.tcl](#)

Key-Escape Exit
 Key-F1 Toggle billboarding
 Key-Up | Down View moves forward | backward
 Key-Left | Down View strafes to the left | right
 Key-Home | End View elevates up | down
 Billboarding is on

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_point_rotated_billboard.cpp
 Author: Kevin Harris (kevin@codesampler.com)
 Last Modified: 02/01/05
 Description: An example of point rotated billboarding.

Control Keys:

F1	- Toggle billboarding
Up	- View moves forward
Down	- View moves backward
Left	- View strafes left
Right	- View strafes Right
Left Mouse	- Perform looking
Mouse	- Look about the scene

Original C++ code by Kevin Harris (kevin@codesampler.com)
 See www.codesampler.com for the original files
 OpenGL samples page 8: Point-Rotated Billboards

Modified for Tcl3D by Paul Obermeier 2007/03/10
 See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_point_sprites
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Point Sprites

Key-Escape Exit
Key-s Start|Stop Animation
Mouse-L Rotate

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_point_sprites.cpp
Author: Kevin Harris (kevin@codesampler.com)
Last Modified: 02/01/05
Description: This sample demonstrates how to create point sprites using OpenGL's new GL_ARB_point_sprite extension, which can be used to create point-rotated billboards on the GPU.

Original C++ code by Kevin Harris (kevin@codesampler.com)
See www.codesampler.com for the original files
OpenGL samples page 6: Point Sprites

Modified for Tcl3D by Paul Obermeier 2005/11/08
See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_polygon_offset
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Polygon Offset

Offset Factor = 0.04
Offset Unit = -1.00

Code Sampler

Demo scripts

- ogl_axis_aligned_billboard.tcl
- ogl_benchmark_sphere.tcl
- ogl_cg_multitexture.tcl
- ogl_color_tracking.tcl
- ogl_fps_controls.tcl
- ogl_frame_buffer_object.tcl
- ogl_glslang_simple_vs2.tcl
- ogl_lighting.tcl
- ogl_material.tcl
- ogl_multitexture_blendir.tcl
- ogl_near_far_clip.tcl
- ogl_occlusion_query.tcl
- ogl_planar_shadow.tcl
- ogl_point_rotated_billboard.tcl
- ogl_point_sprites.tcl
- ogl_polygon_offset.tcl**
- ogl_skinning.tcl
- ogl_texture_addressing.tcl
- ogl_vertex_displacement.tcl
- oglu_projtexture.tcl

Key-Escape Exit
Key-F1|F2 Increment|Decrement offset factor
Key-F3|F4 Increment|Decrement offset unit

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_polygon_offset.cpp
Author: Kevin Harris (kevin@codesampler.com)
Last Modified: 02/01/05
Description: This sample demonstrates how to eliminate z-fighting when rendering polygons directly on top of other polygons.

Control Keys: Left Mouse Button - Spin the view
F1 - Increase Offset Factor
F2 - Decrease Offset Factor
F3 - Increase Offset Unit
F4 - Decrease Offset Unit

Original C++ code by Kevin Harris (kevin@codesampler.com)
See www.codesampler.com for the original files
OpenGL samples page 5: Polygon Offset

Modified for Tcl3D by Paul Obermeier 2007/03/05
See www.tcl3d.org for the Tcl3D extension.

See <http://www.opengl.org/sdk/docs/man/xhtml/glPolygonOffset.xml> for the glPolygonOffset command.

Demo:	ogl_skinning
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Matrix Palette Skinning on the Hardware using OpenGL

Code Sampler

Demo scripts

- [ogl_axis_aligned_billboard.tcl](#)
- [ogl_benchmark_sphere.tcl](#)
- [ogl_cg_multitexture.tcl](#)
- [ogl_color_tracking.tcl](#)
- [ogl_fps_controls.tcl](#)
- [ogl_frame_buffer_object.tcl](#)
- [ogl_glslang_simple_vs2.tcl](#)
- [ogl_lighting.tcl](#)
- [ogl_material.tcl](#)
- [ogl_multitexture_blendir.tcl](#)
- [ogl_near_far_clip.tcl](#)
- [ogl_occlusion_query.tcl](#)
- [ogl_planar_shadow.tcl](#)
- [ogl_point_rotated_billboard.tcl](#)
- [ogl_point_sprites.tcl](#)
- [ogl_polygon_offset.tcl](#)
- [ogl_skinning.tcl](#)
- [ogl_texture_addressing.tcl](#)
- [ogl_vertex_displacement_map.tcl](#)
- [oglu_projtexture.tcl](#)

Key-Esc Exit
Mouse-L Spin the matrix for bone 0.
Mouse-MR Spin the matrix for bone 1.
Key-S Start|Stop animation.
Key-Up|Down Increase|Decrease distance.
Key-F1 Toggle test geometry.
Key-F2 Toggle wireframe mode.

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_cg_skinning.cpp ogl_glslang_skinning.cpp
Author: Kevin Harris (kevin@codesampler.com)
Last Modified: 04/28/05
Description: This sample demonstrates how to skin a mesh on the hardware using a Cg or GLSL shader. To keep things simple, the skeletal system used in this sample is very simple and only consists of two bones or bone matrices.

Special thanks go out to Cyril Zeller, and Matthias Wloka of NVIDIA for their help in straightening out a few oddities that my sample was suffering from. In short, Cg works fine and I'm occasionally a big dummy! ;)

Control Keys: Left Mouse Button - Spin the matrix for bone0.
Right Mouse Button - Spin the matrix for bone1.

F1 - Toggle test geometry between a cylinder and a simple grouping of 3 quads.
F2 - Toggle wire-frame mode

Original C++ code by Kevin Harris (kevin@codesampler.com)

See www.codesampler.com for the original files
OpenGL samples page 11: Matrix Palette Skinning on the Hardware

Modified for Tcl3D by Paul Obermeier 2005/11/05
See www.tcl3d.org for the Tcl3D extension.

This sample integrates Cg and GLSL code into one file.
If called with no command line arguments, it uses the Cg shader.
Use "glsl" as parameter to use the GLSL shader.

Demo:	ogl_texture_addressing
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Texture Addressing

```
GL_TEXTURE_WRAP_S = GL_MIRRORED_REPEAT_ARB
GL_TEXTURE_WRAP_T = GL_REPEAT
```

Key-Escape Exit
Key-F1 Next S texture addressing method
Key-F2 Next T texture addressing method

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_texture_addressing.cpp
Author: Kevin Harris (kevin@codesampler.com)
Last Modified: 02/01/05
Description: This sample demonstrates the two methods of texture addressing that are available under OpenGL:

```
GL_REPEAT
GL_CLAMP
GL_MIRRORED_REPEAT_ARB ( GL_ARB_texture_mirrored_repeat )
GL_CLAMP_TO_BORDER_ARB ( GL_ARB_texture_border_clamp )
GL_CLAMP_TO_EDGE ( GL_SGIS_texture_edge_clamp )
```

Control Keys: F1 - Changes addressing method for the S coordinates
F2 - Changes addressing method for the T coordinates

Original C++ code by Kevin Harris (kevin@codesampler.com)
See www.codesampler.com for the original files
OpenGL samples page 3: Texture Addressing

Modified for Tcl3D by Paul Obermeier 2007/03/06
See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_vertex_displacement
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

X Tcl3D demo: CodeSampler's Vertex Displacement Shader using Cg (768 fp _ □ ×)

Key-Escape Exit
 Key-s Start|Stop Animation
 Key-F1 | F2 Increase|Decrease speed
 Key-F3 Toggle wireframe
 Command line parameters: glsl or cg

Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)

Name: ogl_cg_vertex_displacement.cpp
 ogl_glslang_vertex_displacement.cpp
 Author: Kevin Harris (kevin@codesampler.com)
 Last Modified: 04/21/05
 Description: This sample demonstrates how to perform mesh deformation or vertex displacement with OpenGL using a Cg or GLSL shader.

Control Keys: F1 - Increase flag motion
 F2 - Decrease flag motion
 F3 - Toggle wire-frame mode

Original C++ code by Kevin Harris (kevin@codesampler.com)
 See www.codesampler.com for the original files
 OpenGL samples page 11: Vertex Displacement or Mesh Deformation Shader

Modified for Tcl3D by Paul Obermeier 2005/11/05
 See www.tcl3d.org for the Tcl3D extension.

This sample integrates the Cg and GLSL code into one file.
 If called with no command line arguments, it uses the Cg shader.
 Use "glsl" as parameter to use the GLSL shader.

Demo:	oglu_projtexture
Type:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: CodeSampler's Projected Texture

The window title is "Tcl3D demo: CodeSampler's Projected Texture". The menu bar includes "File", "Edit", "Help", and "Code Sampler". The "Code Sampler" menu has options like "..", "Demo scripts", and "ogl_axis_aligned_billboard.tcl" through "ogl_projtexture.tcl". A scrollable list of demo scripts is visible on the right. The main area shows a 3D cube with a stone texture. A status bar at the bottom left shows keyboard controls: "Key-Escape Exit", "Mouse-L Rotate cube", and "Mouse-MR Rotate light". Another status bar at the bottom right indicates the system is "Running on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)".

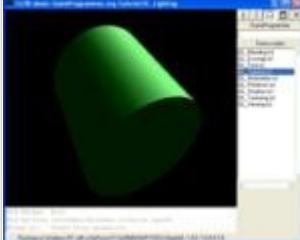
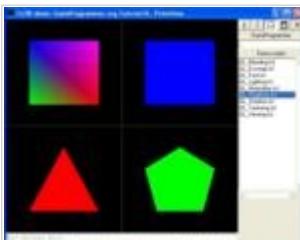
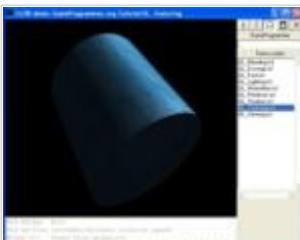
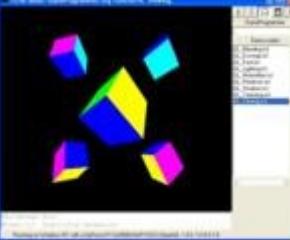
This program demonstrates how one would go about doing a projected texture. The sample here shows how a projected texture technique can be used to produce a light map.

The point is that even though you have very few vertices available for the fixed function pipeline lighting solution, you can achieve nice per pixel lighting even though the surface has only a handful of vertices.

This sample draws a cube, only allowing the inside being visible via culling front facing polys,

and then projects the light map texture on the second texture stage all through the fixed function pipeline.

The left mouse button will move the cube around and the right mouse button will move the projected # light map around.

Type:	GameProgrammer		
Category:	TutorialsAndBooks		
Root:	Contents		
Several demo applications from Vahid Kazemi's page have been ported to Tcl3D. Original sources available at: http://www.GameProgrammer.org			
Available demos			
			
GL_Blending	GL_Envmap	GL_Font	GL_Lighting
			
GL_Motionblur	GL_Primitives	GL_Shadow	GL_Texturing
			
GL_Viewing			

Demo:	GL_Blending
Type:	GameProgrammer
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: GameProgrammer.org Tutorial GL_Blending



The OpenGL logo is displayed on a green background. It consists of the word "OpenGL" in white, bold, sans-serif font, centered within a red rounded rectangular button.

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

GL_Blending.tcl

Tutorial from www.GameProgrammer.org
Blending demo

Original code Copyright 2005 by Vahid Kazemi

Modified for Tcl3D by Paul Obermeier 2006/09/12
See www.tcl3d.org for the Tcl3D extension.

i ? **GameProgrammer**

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Demo scripts

GL_Blending.tcl

GL_Envmap.tcl

GL_Font.tcl

GL_Lighting.tcl

GL_Motionblur.tcl

GL_Primitives.tcl

GL_Shadow.tcl

GL_Texturing.tcl

GL_Viewing.tcl

Demo:	GL_Envmap
Type:	GameProgrammer
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: GameProgrammer.org Tutorial GL_Texturing

Key-Escape Exit
Key-Up|Down Increase|Decrease rotation speed
Mouse-1|2 Start|Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

GL_Texturing.tcl

Tutorial from www.GameProgrammer.org
Using Textures

Original code Copyright 2004 by Vahid Kazemi

Modified for Tcl3D by Paul Obermeier 2006/09/12
See www.tcl3d.org for the Tcl3D extension.

Demo:	GL_Font
Type:	GameProgrammer
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: GameProgrammer.org Tutorial GL_Font

GameProgrammer

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Demo scripts

GL_Blending.tcl
GL_Envmap.tcl
GL_Font.tcl
GL_Lighting.tcl
GL_Motionblur.tcl
GL_Primitives.tcl
GL_Shadow.tcl
GL_Texturing.tcl
GL_Viewing.tcl

THIS IS MY FIRST TEXT!

Key-Escape Exit
Key-Up|Down Increase|Decrease alpha change speed
Mouse-1|2 Start|Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

GL_Font.tcl

Tutorial from www.GameProgrammer.org
Bitmap fonts

Original code Copyright 2005 by Vahid Kazemi

Modified for Tcl3D by Paul Obermeier 2006/09/15
See www.tcl3d.org for the Tcl3D extension.

Demo:	GL_Lighting
Type:	GameProgrammer
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: GameProgrammer.org Tutorial GL_Lighting

Key-Escape Exit
Key-Up|Down Increase|Decrease rotation speed
Mouse-1|2 Start|Stop animation

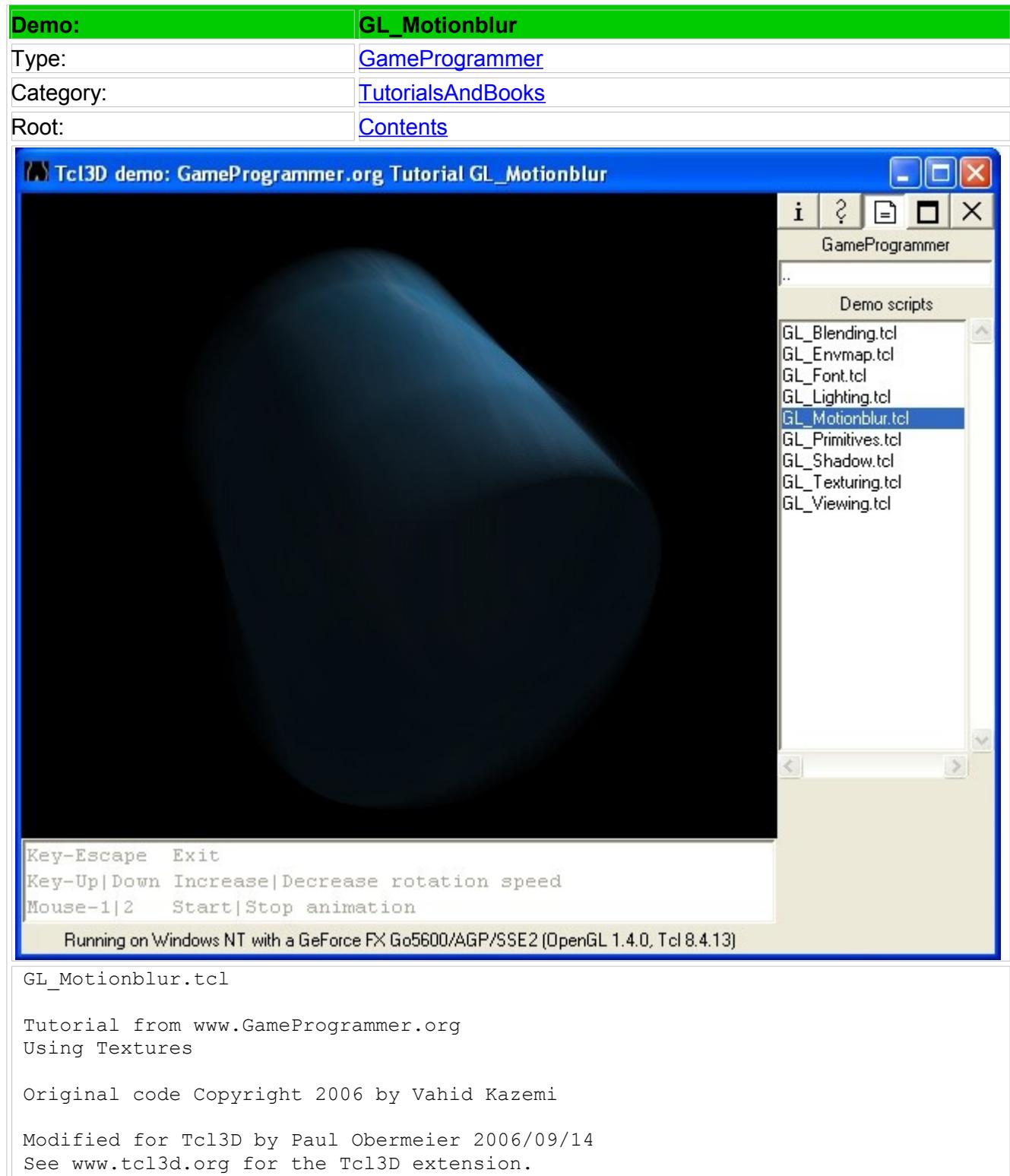
Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

GL_Lighting.tcl

Tutorial from www.GameProgrammer.org
Turn the lights on!

Original code Copyright 2004 by Vahid Kazemi

Modified for Tcl3D by Paul Obermeier 2006/09/11
See www.tcl3d.org for the Tcl3D extension.



Demo:	GL_Primitives
Type:	GameProgrammer
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: GameProgrammer.org Tutorial GL_Primitives

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

GL_Primitives.tcl

Tutorial from www.GameProgrammer.org
OpenGL Primitives.

Original code Copyright 2004 by Vahid Kazemi

Modified for Tcl3D by Paul Obermeier 2006/09/11
See www.tcl3d.org for the Tcl3D extension.

Demo:	GL_Shadow
Type:	GameProgrammer
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: GameProgrammer.org Tutorial GL_Shadow

GL_Shadow.tcl

Tutorial from www.GameProgrammer.org
Stencil shadows.

Original code Copyright 2005 by Vahid Kazemi

Modified for Tcl3D by Paul Obermeier 2006/09/10
See www.tcl3d.org for the Tcl3D extension.

Demo:	GL_Texturing
Type:	GameProgrammer
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: GameProgrammer.org Tutorial GL_Texturing

Key-Escape Exit
Key-Up|Down Increase|Decrease rotation speed
Mouse-1|2 Start|Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

GL_Texturing.tcl

Tutorial from www.GameProgrammer.org
Using Textures

Original code Copyright 2004 by Vahid Kazemi

Modified for Tcl3D by Paul Obermeier 2006/09/12
See www.tcl3d.org for the Tcl3D extension.

Demo:	GL_Viewing
Type:	GameProgrammer
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: GameProgrammer.org Tutorial GL_Viewing

Key-Escape Exit
Mouse-1|2 Start|Stop animation

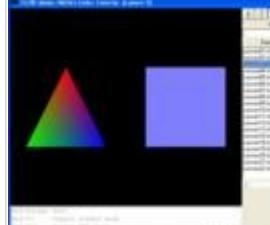
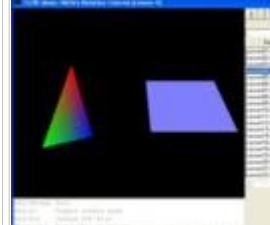
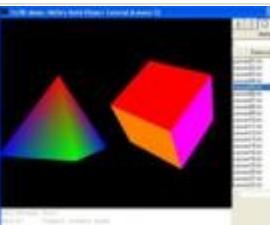
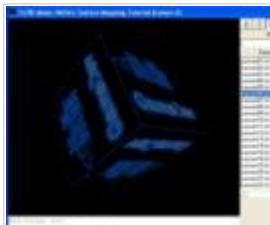
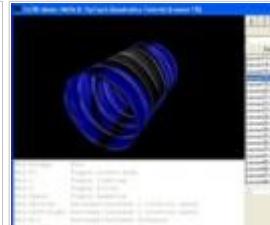
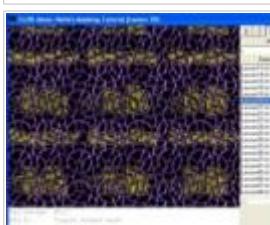
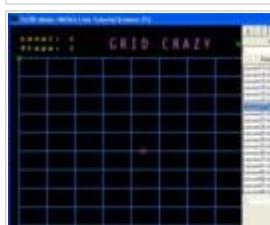
Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

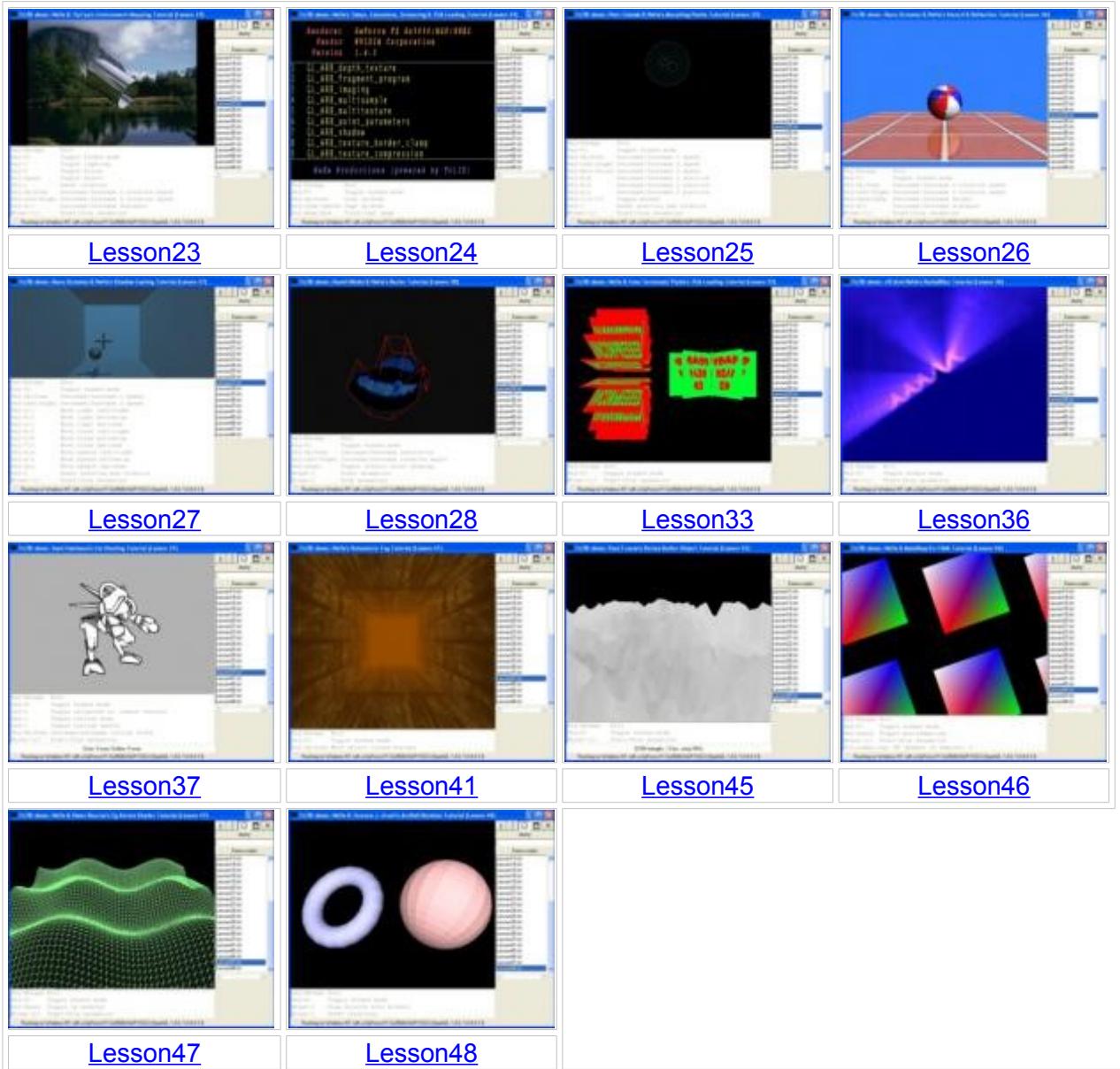
GL_Viewing.tcl

Tutorial from [www.GameProgrammer.org](#)
Viewing and Transformations.

Original code Copyright 2004 by Vahid Kazemi

Modified for Tcl3D by Paul Obermeier 2006/09/11
See [www.tcl3d.org](#) for the Tcl3D extension.

Type:	NeHe		
Category:	TutorialsAndBooks		
Root:	Contents		
Some of the NeHe OpenGL tutorials have been ported to run with Tcl3D. Currently 34 out of 48 lessons are available.			
Original sources available at: http://nehe.gamedev.net/			
Available demos			
			
Lesson01	Lesson02	Lesson03	Lesson04
			
Lesson05	Lesson06	Lesson07	Lesson08
			
Lesson09	Lesson10	Lesson11	Lesson12
			
Lesson13	Lesson14	Lesson16	Lesson18
			
Lesson17	Lesson18	Lesson19	Lesson20
Lesson21		Lesson22	



Demo:	Lesson01
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's OpenGL Framework (Lesson 1)

i ? E X
NeHe

..
Demo scripts
Lesson01.tcl (Selected)
Lesson02.tcl
Lesson03.tcl
Lesson04.tcl
Lesson05.tcl
Lesson06.tcl
Lesson07.tcl
Lesson08.tcl
Lesson09.tcl
Lesson10.tcl
Lesson11.tcl
Lesson12.tcl
Lesson13.tcl
Lesson16.tcl
Lesson18.tcl
Lesson19.tcl
Lesson20.tcl
Lesson21.tcl
Lesson22.tcl

Key-Escape Exit
Key-F1 Toggle window mode
Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson01.tcl

NeHe's OpenGL Framework

This Code Was Created By Jeff Molofee 2000
A HUGE Thanks To Fredric Echols For Cleaning Up
And Optimizing This Code, Making It More Flexible!
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson02
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's First Polygon Tutorial (Lesson 2)

The window title is "Tcl3D demo: NeHe's First Polygon Tutorial (Lesson 2)". The menu bar includes "File", "Edit", "Help", and "NeHe". A list of "Demo scripts" on the right includes files from "Lesson01.tcl" to "Lesson22.tcl", with "Lesson02.tcl" selected. A status bar at the bottom left shows keyboard shortcuts: "Key-Escape Exit", "Key-F1 Toggle window mode", and "Key-F12 Create PDF file". Another status bar at the bottom center says "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

Lesson02.tcl

NeHe's First Polygon Tutorial

This Code Was Created By Jeff Molofee 2000
A HUGE Thanks To Fredric Echols For Cleaning Up
And Optimizing This Code, Making It More Flexible!
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson03
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Color Tutorial (Lesson 3)

The window title is "Tcl3D demo: NeHe's Color Tutorial (Lesson 3)". The menu bar includes "File", "Edit", "Help", and "NeHe". A list of "Demo scripts" on the right includes files from "Lesson01.tcl" to "Lesson22.tcl", with "Lesson03.tcl" selected. In the main window, there is a large triangle composed of a color gradient (red, yellow, green, blue) and a smaller blue square.

Key-Escape Exit
Key-F1 Toggle window mode
Key-F12 Create PDF file

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson03.tcl

NeHe's Color Tutorial

This Code Was Created By Jeff Molofee 2000
A HUGE Thanks To Fredric Echols For Cleaning Up
And Optimizing This Code, Making It More Flexible!
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson04
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Rotation Tutorial (Lesson 4)

The window title is "Tcl3D demo: NeHe's Rotation Tutorial (Lesson 4)". The menu bar includes "File", "Edit", "Help", and "NeHe". A list of "Demo scripts" on the right includes files from "Lesson01.tcl" to "Lesson22.tcl", with "Lesson04.tcl" selected. A status bar at the bottom left shows keyboard shortcuts and the system information: "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

Key-Escape Exit
 Key-F1 Toggle window mode
 Key-F12 Create PDF file
 Mouse-1|2 Start|Stop animation

Lesson04.tcl

NeHe's Rotation Tutorial

This Code Was Created By Jeff Molofee 2000
 A HUGE Thanks To Fredric Echols For Cleaning Up
 And Optimizing This Code, Making It More Flexible!
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson05
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Solid Object Tutorial (Lesson 5)

Key-Escape Exit
 Key-F1 Toggle window mode
 Key-F12 Create PDF file
 Mouse-1|2 Start|Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson05.tcl

NeHe's Solid Object Tutorial

This Code Was Created By Jeff Molofee 2000
 A HUGE Thanks To Fredric Echols For Cleaning Up
 And Optimizing This Code, Making It More Flexible!
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson06
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Texture Mapping Tutorial (Lesson 6)

Key-Escape Exit
Key-F1 Toggle window mode
Mouse-1|2 Start|Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson06.tcl

NeHe's Texture Mapping Tutorial

This Code Was Created By Jeff Molofee 2000
A HUGE Thanks To Fredric Echols For Cleaning Up
And Optimizing This Code, Making It More Flexible!
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson07
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Textures, Lighting & Keyboard Tutorial (Lesson 7)

The window title bar reads "Tcl3D demo: NeHe's Textures, Lighting & Keyboard Tutorial (Lesson 7)". The menu bar includes standard icons for file operations. The main area shows a 3D wooden cube with a cross texture. To the right is a list of "Demo scripts" from "Lesson01.tcl" to "Lesson22.tcl", with "Lesson07.tcl" selected. A key binding table below lists keyboard and mouse controls. At the bottom, it says "Filter Nearest" and "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

Key-Escape	Exit
Key-F1	Toggle window mode
Key-l	Toggle lighting
Key-f	Toggle filter
Key-Up Down	Decrease Increase x rotation speed
Key-Left Right	Decrease Increase y rotation speed
Key-d i	Decrease Increase distance
Mouse-1 2	Start Stop animation

Filter Nearest
Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson07.tcl

NeHe's Textures, Lighting & Keyboard Tutorial

This Code Was Created By Jeff Molofee 2000
A HUGE Thanks To Fredric Echols For Cleaning Up
And Optimizing This Code, Making It More Flexible!
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson08
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: Tom Stanis & NeHe's Blending Tutorial (Lesson 8)

Key-Escape Exit
 Key-F1 Toggle window mode
 Key-l Toggle lighting
 Key-f Toggle filter
 Key-b Toggle blending
 Key-Up|Down Decrease|Increase x rotation speed
 Key-Left|Right Decrease|Increase y rotation speed
 Key-d|i Decrease|Increase distance
 Mouse-1|2 Start|Stop animation

Filter Nearest
 Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson08.tcl

Tom Stanis & NeHe's Blending Tutorial

This Code Was Created By Tom Stanis / Jeff Molofee 2000
 A HUGE Thanks To Fredric Echols For Cleaning Up
 And Optimizing This Code, Making It More Flexible!
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson09
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Animated Blended Textures Tutorial (Lesson 9)

The demo window title is "Tcl3D demo: NeHe's Animated Blended Textures Tutorial (Lesson 9)". The window contains a 3D rendering of numerous small, multi-colored stars (yellow, green, blue, red) against a black background. On the right side of the window is a file browser titled "Demo scripts" listing "Lesson01.tcl" through "Lesson22.tcl". The "Lesson09.tcl" entry is highlighted. Below the window is a key binding legend and a note about the system configuration.

```

Key-Escape Exit
Key-F1 Toggle window mode
Key-t Toggle twinkle
Key-Up|Down Decrease|Increase tilt
Key-d|i Decrease|Increase distance
Mouse-1|2 Start|Stop animation

```

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson09.tcl

NeHe's Animated Blended Textures Tutorial

This Code Was Created By Jeff Molofee 2000
A HUGE Thanks To Fredric Echols For Cleaning Up
And Optimizing This Code, Making It More Flexible!
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson10
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: Lionel Brits & NeHe's 3D World Tutorial (Lesson 10)

Key-Escape Exit
 Key-F1 Toggle window mode
 Key-b Toggle blending
 Key-f Toggle filter
 Key-Up|Down Move forth|back
 Key-Left|Right Look left|right
 Key-PgUp|PgDn Look up|down

Filter MipMapped
 Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson10.tcl

Lionel Brits & NeHe's 3D World Tutorial

This Code Was Created By Lionel Brits & Jeff Molofee 2000
 A HUGE Thanks To Fredric Echols For Cleaning Up
 And Optimizing This Code, Making It More Flexible!
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson11
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: bosco & NeHe's Waving Texture Tutorial (Lesson 11)

Key-Escape Exit
Key-F1 Toggle window mode
Mouse-1|2 Start|Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson11.tcl

bosco & NeHe's Waving Texture Tutorial

This Code Was Created By bosco / Jeff Molofee 2000
A HUGE Thanks To Fredric Echols For Cleaning Up
And Optimizing This Code, Making It More Flexible!
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson12
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Display List Tutorial (Lesson 12)

Key-Escape Exit
 Key-F1 Toggle window mode
 Key-Left|Right Decrease| Increase X rotation
 Key-Up|Down Decrease| Increase Y rotation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson12.tcl

NeHe's Display List Tutorial

This Code Was Created By Jeff Molofee 2000
 A HUGE Thanks To Fredric Echols For Cleaning Up
 And Optimizing This Code, Making It More Flexible!
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson13
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Bitmap Font Tutorial (Lesson 13)

The screenshot shows a Windows application window titled "Tcl3D demo: NeHe's Bitmap Font Tutorial (Lesson 13)". The window has a menu bar with icons for information, help, file, edit, and exit. The main area displays the text "Active OpenGL Text With NeHe -". To the right is a scrollable list of files named "Demo scripts" containing "Lesson01.tcl" through "Lesson22.tcl", with "Lesson13.tcl" highlighted. A status bar at the bottom left shows keyboard shortcuts: Key-Escape Exit, Key-F1 Toggle window mode, and Mouse-1|2 Start|Stop animation. Another status bar at the bottom right indicates the system is running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13).

Lesson13.tcl

NeHe's Bitmap Font Tutorial

This Code Was Created By Jeff Molofee 2000
 Modified by Shawn T. to handle (%3.2f, num) parameters.
 A HUGE Thanks To Fredric Echols For Cleaning Up
 And Optimizing The Base Code, Making It More Flexible!
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson14
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Outline Font Tutorial (Lesson 14)

Key-Escape Exit
Key-F1 Toggle window mode
Mouse-1|2 Start|Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson14.tcl

NeHe's Outline Font Tutorial

This Code Was Created By Jeff Molofee 2000
Modified by Shawn T. to handle (%3.2f, num) parameters.
A HUGE Thanks To Fredric Echols For Cleaning Up
And Optimizing The Base Code, Making It More Flexible!
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/08/26
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson16
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: Chris Aliotta & NeHe's Fog Tutorial (Lesson 16)

Key-**E**scape Exit
 Key-**F**1 Toggle window mode
 Key-**l** Toggle lighting
 Key-**f** Toggle texture filter
 Key-**g** Toggle fog filter
 Key-**U**p|**D**own Decrease|Increase x rotation speed
 Key-**L**eft|**R**ight Decrease|Increase y rotation speed
 Key-**d**|**i** Decrease|Increase distance
 Mouse-**1**|**2** Start|Stop animation

Fog GL_EXP2
Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson16.tcl

Chris Aliotta & NeHe's Fog Tutorial

This Code Was Created By Christopher Aliotta & Jeff Molofee 2000
 A HUGE Thanks To Fredric Echols For Cleaning Up
 And Optimizing This Code, Making It More Flexible!
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson18
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe & TipTup's Quadratics Tutorial (Lesson 18)

The window title bar reads "Tcl3D demo: NeHe & TipTup's Quadratics Tutorial (Lesson 18)". The menu bar includes icons for Help, File, and Exit, and the text "NeHe". A scrollable list on the right side is titled "Demo scripts" and contains a list of tcl files from "Lesson13.tcl" to "Lesson48.tcl", with "Lesson18.tcl" selected.

Key-Escape	Exit
Key-F1	Toggle window mode
Key-l	Toggle lighting
Key-f	Toggle filter
Key-Space	Toggle quadratics
Key-Up Down	Decrease Increase x rotation speed
Key-Left Right	Decrease Increase y rotation speed
Key-d i	Decrease Increase distance
Mouse-1 2	Start Stop animation

Object Cylinder
Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson18.tcl

NeHe & TipTup's Quadratics Tutorial

This Code Was Created By Jeff Molofee and GB Schmick 2000
A HUGE Thanks To Fredric Echols For Cleaning Up
And Optimizing This Code, Making It More Flexible!
If You've Found This Code Useful, Please Let Me Know.
Visit Our Sites At www.tiptup.com and nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/01/25
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson19
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Particle Tutorial (Lesson 19)

The screenshot shows a Windows application window titled "Tcl3D demo: NeHe's Particle Tutorial (Lesson 19)". Inside the window, there is a dark background with a colorful particle effect resembling a comet or a starburst. On the right side, there is a scrollable list of "Demo scripts" containing files from "Lesson13.tcl" to "Lesson48.tcl", with "Lesson19.tcl" highlighted. At the bottom left, a key binding table lists various keyboard and mouse inputs with their corresponding actions. A note at the bottom states the system configuration: "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

Key-Escape	Exit
Key-F1	Toggle window mode
Key-Return	Toggle rainbow mode
Key-space	Toggle colors
Key-Tab	Burst
Key-8 2	Pull up down
Key-6 4	Pull left right
Key-Up Down	Increase upward downward speed
Key-Left Right	Increase left right speed
Key-d i	Decrease Increase distance
Mouse-1 2	Start Stop animation

Lesson19.tcl

NeHe's Particle Tutorial

This Code Was Created By Jeff Molofee 2000
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/03/14
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson20
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Masking Tutorial (Lesson 20)

Key-Escape Exit
 Key-F1 Toggle window mode
 Key-m Toggle masking
 Key-space Toggle scenes
 Mouse-1|2 Start|Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson20.tcl

NeHe's Masking Tutorial

This Code Was Created By Jeff Molofee 2000
 And Modified By Giuseppe D'Agata (waveform@tiscalinet.it)
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/03/14
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson21
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Line Tutorial (Lesson 21)

The screenshot shows a 3D grid environment with a title bar "Tcl3D demo: NeHe's Line Tutorial (Lesson 21)". The main window displays a 3D grid with a small red diamond-shaped object at the center. The status bar shows "Level: 1" and "Stage: 1". A sidebar on the right lists "Demo scripts" including Lesson13.tcl through Lesson48.tcl, with "Lesson21.tcl" selected.

Lesson21.tcl

NeHe's Line Tutorial

This Code Was Created By Jeff Molofee 2000
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/03/14
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson22
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's GL_ARB_multitexture & Bump Mapping Tutorial (Lesson 22)

Key-Escape	Exit
Key-F1	Toggle window mode
Key-e	Toggle emboss
Key-m	Toggle multitexturing
Key-b	Toggle bump maps
Key-f	Toggle filter
Key-Up Down	Decrease Increase x rotation speed
Key-Left Right	Decrease Increase y rotation speed
Key-d i	Decrease Increase distance
Mouse-1 2	Start Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson22.tcl

NeHe's GL_ARB_multitexture & Bump Mapping Tutorial

This Code Was Created by Jens Schneider (WizardSoft) 2000
Lesson22 to the series of OpenGL tutorials by NeHe-Production

This Code is loosely based upon Lesson06 by Jeff Molofee.
contact me at: schneide@pool.informatik.rwth-aachen.de

Basecode Was Created By Jeff Molofee 2000
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/08/16
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson23
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe & TipTup's Environment Mapping Tutorial (Lesson 23)

Key-Escape Exit
 Key-F1 Toggle window mode
 Key-l Toggle lighting
 Key-f Toggle filter
 Key-space Toggle object
 Key-r Reset rotation
 Key-Up|Down Decrease|Increase x rotation speed
 Key-Left|Right Decrease|Increase y rotation speed
 Key-d|i Decrease|Increase distance
 Mouse-1|2 Start|Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson23.tcl

NeHe & TipTup's Environment Mapping Tutorial

This Code Was Created By Jeff Molofee and GB Schmick 2000
 A HUGE Thanks To Fredric Echols For Cleaning Up
 And Optimizing The Base Code, Making It More Flexible!
 If You've Found This Code Useful, Please Let Me Know.
 Visit Our Sites At www.tiptup.com and nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/08/27
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson24
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Token, Extensions, Scissoring & TGA Loading Tutorial (Lesson 24)

The screenshot shows a Windows application window titled "Tcl3D demo: NeHe's Token, Extensions, Scissoring & TGA Loading Tutorial (Lesson 24)". Inside the window, there is a text area displaying OpenGL extension names (e.g., GL_ARB_depth_texture, GL_ARB_fragment_program) numbered 1 through 9. Below this is a copyright notice: "NeHe Productions (powered by Tcl3D)". At the bottom, a key binding table lists keyboard shortcuts for various actions like Exit, Toggle window mode, and Line up/down. A status bar at the bottom indicates the system is running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13). To the right of the main window is a vertical file browser pane containing a list of Tcl files, with "Lesson24.tcl" selected.

```

1 GL_ARB_depth_texture
2 GL_ARB_fragment_program
3 GL_ARB_imaging
4 GL_ARB_multisample
5 GL_ARB_multitexture
6 GL_ARB_point_parameters
7 GL_ARB_shadow
8 GL_ARB_texture_border_clamp
9 GL_ARB_texture_compression

```

NeHe Productions (powered by Tcl3D)

Key-Escape Exit
 Key-F1 Toggle window mode
 Key-Up|Down Line up|down
 Key-PgUp|PgDown Page up|down
 Key-Home|End First|last page

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson24.tcl

NeHe's Token, Extensions, Scissoring & TGA Loading Tutorial

This Code Was Created By Jeff Molofee 2000
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/08/25
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson25
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: Piotr Cieslak & NeHe's Morphing Points Tutorial (Lesson 25)

Key-Escape	Exit
Key-F1	Toggle window mode
Key-Up Down	Decrease Increase x speed
Key-Left Right	Decrease Increase y speed
Key-Next Prior	Decrease Increase z speed
Key-a d	Decrease Increase x position
Key-s w	Decrease Increase y position
Key-q z	Decrease Increase z position
Key-1 2 3 4	Toggle morphs
Key-r	Reset position and rotation
Mouse-1 2	Start Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson25.tcl

Piotr Cieslak & NeHe's Morphing Points Tutorial

This Code Was Created By Pet & Commented/Cleaned Up By Jeff Molofee
If You've Found This Code Useful, Please Let Me Know.
Visit NeHe Productions At <http://nehe.gamedev.net>

Modified for Tcl3D by Paul Obermeier 2007/03/03
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson26
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: Banu Octavian & NeHe's Stencil & Reflection Tutorial (Lesson 26)

Key-Escape Exit
 Key-F1 Toggle window mode
 Key-Up|Down Decrease|Increase x rotation speed
 Key-Left|Right Decrease|Increase y rotation speed
 Key-PgDn|PgUp Decrease|Increase height
 Key-d|i Decrease|Increase distance
 Mouse-1|2 Start|Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson26.tcl

Banu Octavian & NeHe's Stencil & Reflection Tutorial

This code has been created by Banu Octavian aka Choko - 20 may 2000 and uses NeHe tutorials as a starting point (window initialization, texture loading, GL initialization and code for keypresses) - very good tutorials, Jeff. If anyone is interested about the presented algorithm please e-mail me at boct@romwest.ro

Code Commenting And Clean Up By Jeff Molofee (NeHe)
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/08/16
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson27
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: Banu Octavian & NeHe's Shadow Casting Tutorial (Lesson 27)

Key-Escape Exit
 Key-F1 Toggle window mode
 Key-Up|Down Decrease|Increase x speed
 Key-Left|Right Decrease|Increase y speed
 Key-j|l Move light left|right
 Key-k|i Move light bottom|up
 Key-u|o Move light far|near
 Key-4|6 Move cross left|right
 Key-5|8 Move cross bottom|up
 Key-7|9 Move cross far|near
 Key-a|d Move sphere left|right
 Key-s|w Move sphere bottom|up
 Key-q|e Move sphere far|near
 Key-r Reset position and rotation
 Mouse-1|2 Start|Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson27.tcl

```
"Banu Octavian & NeHe's Shadow Casting Tutorial"

This code has been created by Banu Octavian aka Choko - 20 may 2000
and uses NeHe tutorials as a starting point (window initialization,
texture loading, GL initialization and code for keypresses) - very good
tutorials, Jeff. If anyone is interested about the presented algorithm
please e-mail me at boct@romwest.ro
Attention!!! This code is not for beginners.

Modified for Tcl3D by Paul Obermeier 2007/02/27
See www.tcl3d.org for the Tcl3D extension.
```

Demo:	Lesson28
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: David Nikdel & NeHe's Bezier Tutorial (Lesson 28)

The demo window title is "Tcl3D demo: David Nikdel & NeHe's Bezier Tutorial (Lesson 28)". The window has a menu bar with icons for information, help, file, and exit. The main area shows a 3D rendering of a blue "GameDev" logo inside a wireframe cube. On the right, there is a list titled "Demo scripts" containing files from "Lesson13.tcl" to "Lesson48.tcl", with "Lesson28.tcl" selected. A key binding table at the bottom left lists keyboard and mouse controls. A note at the bottom states the demo is running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13).

Key-Escape	Exit
Key-F1	Toggle window mode
Key-Up Down	Increase Decrease resolution
Key-Left Right	Increase Decrease rotation angle
Key-space	Toggle control point drawing
Mouse-1	Start animation
Mouse-2	Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson28.tcl

David Nikdel & NeHe's Bezier Tutorial

This Code Was Published By Jeff Molofee 2000
 Code Was Created By David Nikdel For NeHe Productions
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/08/29
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson33
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe & Evan 'terminate' Piphos TGA Loading Tutorial (Lesson 33)

The window title bar reads "Tcl3D demo: NeHe & Evan 'terminate' Piphos TGA Loading Tutorial (Lesson 33)". The menu bar includes "File", "Edit", "Help", and "NeHe". A toolbar with icons for file operations is present. The main area contains two 3D text blocks. The left block has multiple layers of text reading "UNCOMPRESSED" in red and green. The right block has multiple layers of text reading "COMPRESSED" in red and green. A status bar at the bottom shows keyboard shortcuts: "Key-Escape Exit", "Key-F1 Toggle window mode", and "Mouse-1|2 Start|Stop animation". Below the status bar, it says "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

Lesson33.tcl

NeHe & Evan 'terminate' Piphos TGA Loading Tutorial

Loading Uncompressed and Compressed .TGA Files with the Img extension.

This Code Was Created By Evan Piphos
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/08/16
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson36
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: rIO And NeHe's RadialBlur Tutorial (Lesson 36)

Key-Escape Exit
Key-F1 Toggle window mode
Mouse-1|2 Start|Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson36.tcl

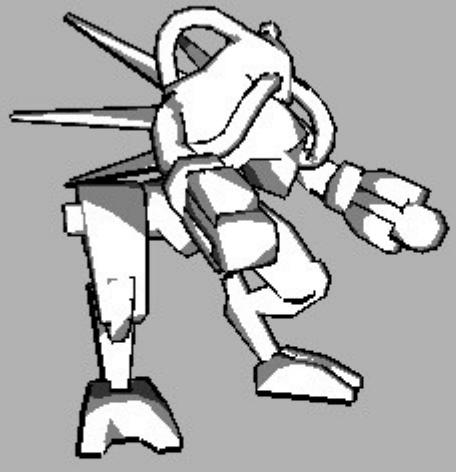
Dario Corno's Radial Blur & Rendering To A Texture Tutorial

If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/08/23
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson37
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: Sami Hamlaoui's Cel-Shading Tutorial (Lesson 37)



Key-Escape Exit
 Key-F1 Toggle window mode
 Key-o Toggle optimized vs. simple version
 Key-1 Toggle outline draw
 Key-2 Toggle outline smooth
 Key-Up|Down Increase|Decrease outline width
 Mouse-1|2 Start|Stop animation

Draw: 0 msec Outline: 0 msec

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson37.tcl
 Sami Hamlaoui's Cel-Shading Code
 Note: The original article for this code can be found at:
<http://www.gamedev.net/reference/programming/features/celshading>
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net
 Modified for Tcl3D by Paul Obermeier 2006/08/22
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson41
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe's Volumetric Fog Tutorial (Lesson 41)



The demo window title bar reads "Tcl3D demo: NeHe's Volumetric Fog Tutorial (Lesson 41)". The window has standard Windows-style controls (minimize, maximize, close) and a toolbar with icons for information, help, file operations, and exit. A menu bar item "NeHe" is visible. A list box on the right side of the window contains a scrollable list of "Demo scripts" with files named from "Lesson13.tcl" to "Lesson48.tcl", with "Lesson41.tcl" highlighted. A status bar at the bottom left shows keyboard shortcuts: "Key-Escape Exit", "Key-F1 Toggle window mode", and "Key-Up|Down Move object closer|further". Another status bar at the bottom right indicates the system is "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

Lesson41.tcl

NeHe's Volumetric Fog Tutorial

This Code Was Created By Jeff Molofee 2003
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/08/27
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson45
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: Paul Frazee's Vertex Buffer Object Tutorial (Lesson 45)

Key-Escape Exit
Key-F1 Toggle window mode
Mouse-1|2 Start|Stop animation

32768 triangles, 13 fps, using VBOs

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson45.tcl

Paul Frazee's Vertex Buffer Object Tutorial

Code Commenting And Clean Up By Jeff Molofee (NeHe)
If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/08/17
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson46
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe & MainRoach's FSAA Tutorial (Lesson 46)

Key-Escape Exit
 Key-F1 Toggle window mode
 Key-Space Toggle multisampling
 Mouse-1|2 Start|Stop animation
 Multisampling: ON (Number of samples: 2)

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson46.tcl

NeHe & MainRoach's FSAA Tutorial

This Code Was Created By Jeff Molofee 2001
 and Colt McAnlis (MainRoach).
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/08/13
 See www.tcl3d.org for the Tcl3D extension.

This demo uses the multisampling options built into tcl3dTogl starting from version 0.3.2.
 Another way to set the number of samples is via the driver specific GUI under Windows, or by setting the environment variable __GL_FSAA_MODE under Linux.

Demo:	Lesson47
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe & Owen Bourne's Cg Vertex Shader Tutorial (Lesson 47)

Key-Escape Exit
Key-F1 Toggle window mode
Key-Space Toggle Cg shading
Mouse-1|2 Start|Stop animation

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

Lesson47.tcl

NeHe & Owen Bourne's Cg Vertex Shader Tutorial

If You've Found This Code Useful, Please Let Me Know.
Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/09/05
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson48
Type:	NeHe
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: NeHe & Terence J. Grant's ArcBall Rotation Tutorial (Lesson 48)

Key-Escape Exit
 Key-F1 Toggle window mode
 Mouse-1 Drag objects with ArcBall
 Mouse-3 Reset rotations

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

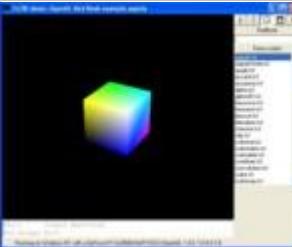
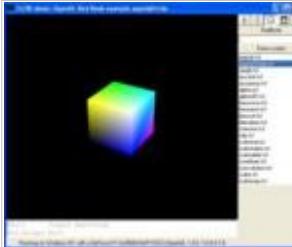
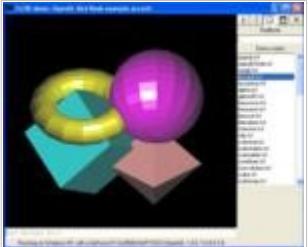
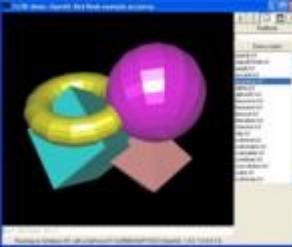
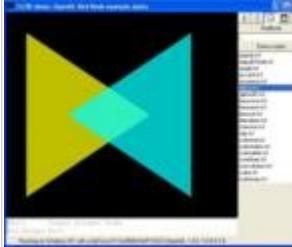
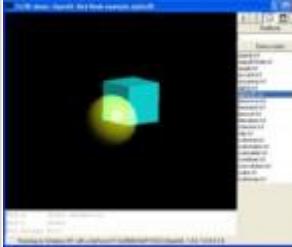
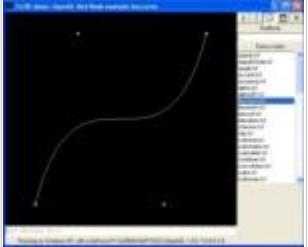
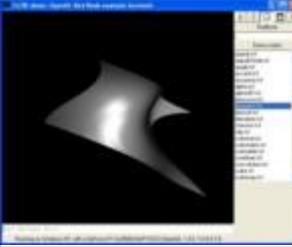
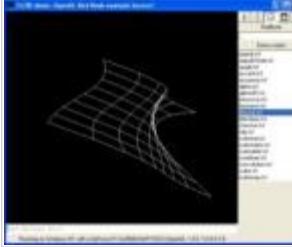
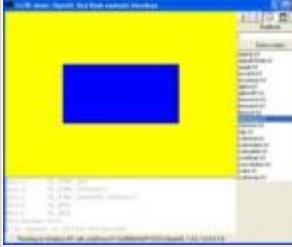
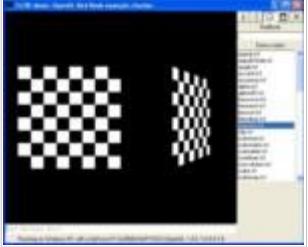
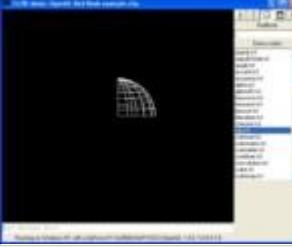
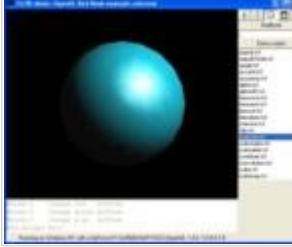
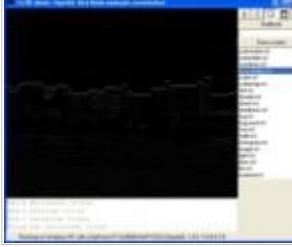
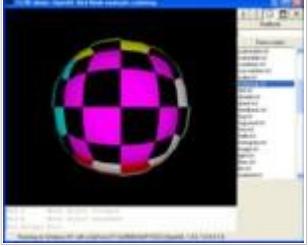
Lesson48.tcl

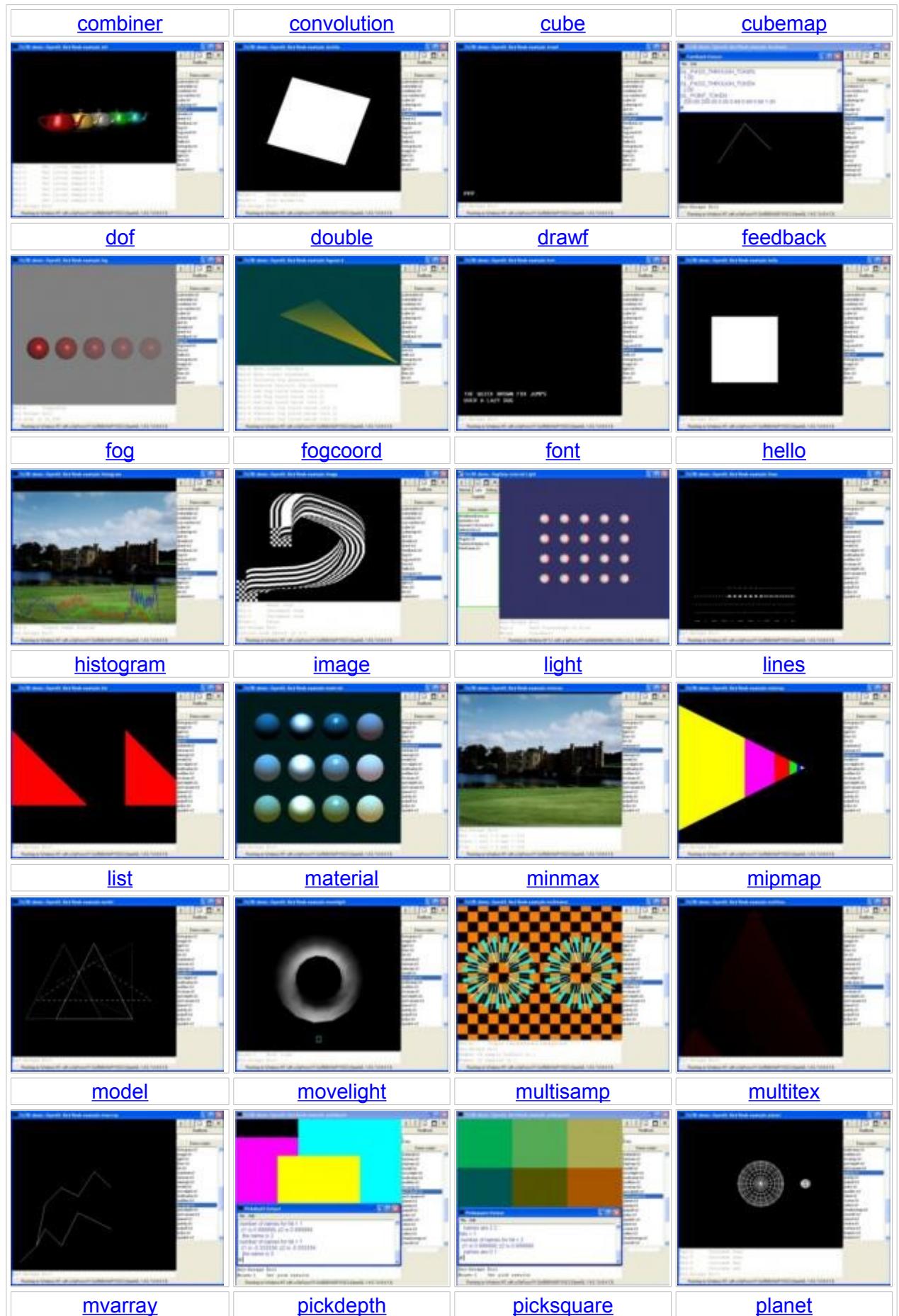
NeHe & Terence J. Grant's ArcBall Rotation Tutorial

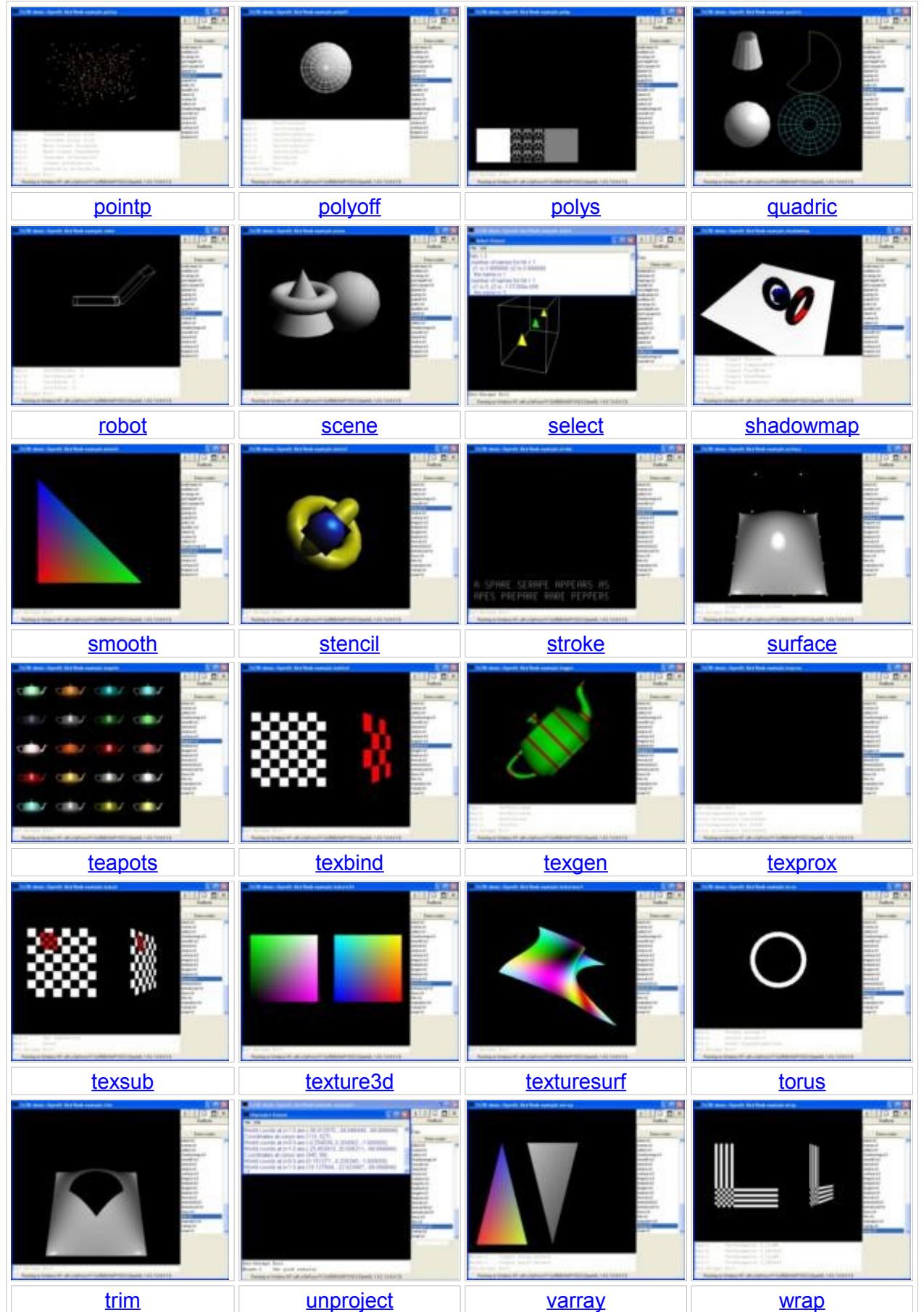
Authors Name: Terence J. Grant

NeHe Productions 1997-2004
 If You've Found This Code Useful, Please Let Me Know.
 Visit My Site At nehe.gamedev.net

Modified for Tcl3D by Paul Obermeier 2006/08/31
 See www.tcl3d.org for the Tcl3D extension.

Type:	RedBook		
Category:	TutorialsAndBooks		
Root:	Contents		
<p>The Redbook describing OpenGL Version 1.4 contains 72 examples written in C. 67 of them have been successfully converted into equivalent Tcl3D scripts and the results compared on several operating systems and computers against the C version.</p> <p>Three of the missing five examples (surfpoints, tess, tesswin) deal with tesselation, which is currently not supported. The other two test programs (aaindex, fogindex) not yet ported deal with color index mode, which is not yet implemented in the tcl3dTogl widget.</p> <p>Original sources available at: http://www.opengl-redbook.com/source/</p>			
Available demos			
			
aapoly	aapolyStride	aargb	accanti
			
accpersp	alpha	alpha3D	bezcurve
			
bezmesh	bezsurf	blendeqn	checker
			
clip	colormat	colormatrix	colortable
			





Demo:	aapoly
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example aapoly

The window title bar says "Tcl3D demo: OpenGL Red Book example aapoly". The menu bar has items "i ? < > X" and "RedBook". A toolbar below the menu bar has a "...". The main area shows a 3D cube with a color gradient from yellow at the top to blue at the bottom. To the right is a list of "Demo scripts" including: aapoly.tcl, aapolyStride.tcl, aargb.tcl, accanti.tcl, accpersp.tcl, alpha.tcl, alpha3D.tcl, bezcurve.tcl, bezmesh.tcl, bezsurf.tcl, blendeqn.tcl, checker.tcl, clip.tcl, colormat.tcl, colormatrix.tcl, colortable.tcl, combiner.tcl, convolution.tcl, cube.tcl, cubemap.tcl. At the bottom left, a key binding is shown: "Key-t Toggle smoothing" and "Key-Escape Exit". Below that, it says "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

aapoly.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
See file LICENSE for complete license information.

This program draws filled polygons with antialiased edges. The special GL_SRC_ALPHA_SATURATE blending function is used.
Pressing the 't' key turns the antialiasing on and off.

Demo:	aapolyStride
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example aapolyStride

The window title bar says "Tcl3D demo: OpenGL Red Book example aapolyStride". The menu bar has icons for Help, File, and Exit, and the word "RedBook". A toolbar below the menu has icons for Help, File, and Exit. The main area shows a 3D cube with a color gradient from yellow at the top to blue at the bottom. To the right is a list of "Demo scripts" including aapoly.tcl, aapolyStride.tcl, aargb.tcl, accanti.tcl, accpersp.tcl, alpha.tcl, alpha3D.tcl, bezcurve.tcl, bezmesh.tcl, bezsurf.tcl, blendeqn.tcl, checker.tcl, clip.tcl, colormat.tcl, colormatrix.tcl, colortable.tcl, combiner.tcl, convolution.tcl, cube.tcl, and cubemap.tcl. The "aapolyStride.tcl" file is selected. At the bottom left, a key binding "Key-t Toggle smoothing" is shown. At the bottom center, it says "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

aapoly.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program draws filled polygons with antialiased edges. The special GL_SRC_ALPHA_SATURATE blending function is used.
Pressing the 't' key turns the antialiasing on and off.

Demo:	aargb
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example aargb

Key-r Rotate
 Key-Escape Exit
 GL_LINE_WIDTH_GRANULARITY: 0.125
 GL_LINE_WIDTH RANGE: 0.5 10.0

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

aargb.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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 The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This program draws shows how to draw anti-aliased lines. It draws two diagonal lines to form an X; when 'r' is typed in the window, the lines are rotated in opposite directions.

Demo:	accanti
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example accanti



The window title is "Tcl3D demo: OpenGL Red Book example accanti". The menu bar includes "RedBook" and "Demo scripts". The "Demo scripts" list contains the following files: aapoly.tcl, aapolyStride.tcl, aargb.tcl, **accanti.tcl**, accpersp.tcl, alpha.tcl, alpha3D.tcl, bezcurve.tcl, bezmesh.tcl, bezsurf.tcl, blendeqn.tcl, checker.tcl, clip.tcl, colormat.tcl, colormatrix.tcl, colorable.tcl, combiner.tcl, convolution.tcl, cube.tcl, cubemap.tcl.

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

accanti.tcl

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Use the accumulation buffer to do full-scene antialiasing
on a scene with orthographic parallel projection.

Demo:	accpersp
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example accpersp

The window title is "Tcl3D demo: OpenGL Red Book example accpersp". The menu bar includes "RedBook" and "Demo scripts". The "Demo scripts" list contains several tcl files, with "accpersp.tcl" highlighted. The status bar at the bottom left shows "Key-Escape Exit" and "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

accpersp.tcl

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Use the accumulation buffer to do full-scene antialiasing
on a scene with perspective projection, using the special
routines accFrustum() and accPerspective().

Demo:	alpha
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example alpha

The window title is "Tcl3D demo: OpenGL Red Book example alpha". The menu bar includes "RedBook" and "Demo scripts". The "Demo scripts" list contains several tcl files, with "alpha.tcl" selected. A status bar at the bottom left shows "Key-t Toggle polygon order" and "Key-Escape Exit". Another status bar at the bottom center says "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

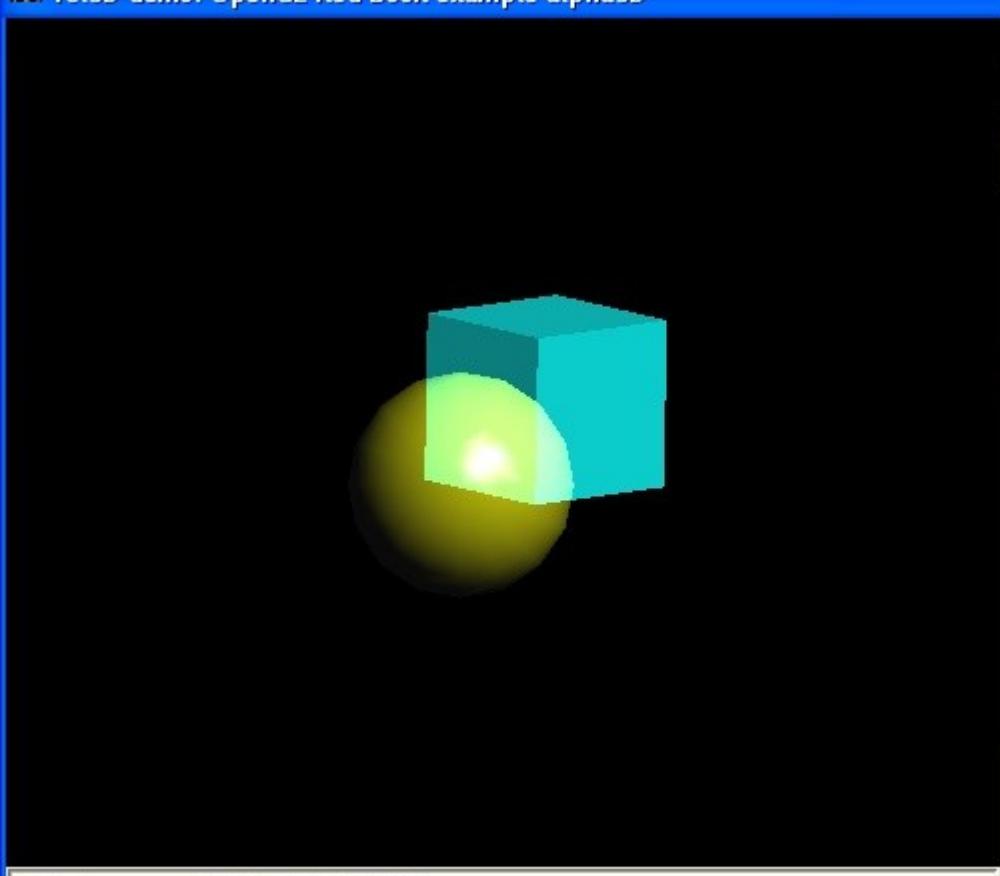
alpha.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program draws several overlapping filled polygons
to demonstrate the effect order has on alpha blending results.
Use the 't' key to toggle the order of drawing polygons.

Demo:	alpha3D
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example alpha3D



The window title is "Tcl3D demo: OpenGL Red Book example alpha3D". The menu bar includes "File", "Edit", "Help", and "RedBook". A toolbar with icons for file operations is visible. The main area shows a 3D scene with a yellow sphere and a cyan cube. To the right is a list of "Demo scripts" including: aapoly.tcl, aapolyStride.tcl, aargb.tcl, accanti.tcl, accpersp.tcl, alpha.tcl, alpha3D.tcl (selected), bezcurve.tcl, bezmesh.tcl, bezsurf.tcl, blendeqn.tcl, checker.tcl, clip.tcl, colormat.tcl, colormatrix.tcl, colorable.tcl, combiner.tcl, convolution.tcl, cube.tcl, and cubemap.tcl.

Key-a Start animation
Key-r Reset
Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

alpha3D.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program demonstrates how to intermix opaque and alpha blended polygons in the same scene, by using glDepthMask. Press the 'a' key to animate moving the transparent object through the opaque object. Press the 'r' key to reset the scene.

Demo:	bezcurve
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example bezcurve

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

bezcurve.tcl

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This program uses evaluators to draw a Bezier curve.

Demo:	bezmesh
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example bezmesh

RedBook

Demo scripts

- aapoly.tcl
- aapolyStride.tcl
- aargb.tcl
- accanti.tcl
- accpersp.tcl
- alpha.tcl
- alpha3D.tcl
- bezcurve.tcl
- bezmesh.tcl**
- bezsurf.tcl
- blendedeqn.tcl
- checker.tcl
- clip.tcl
- colormat.tcl
- colormatrix.tcl
- colortable.tcl
- combiner.tcl
- convolution.tcl
- cube.tcl
- cubemap.tcl

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

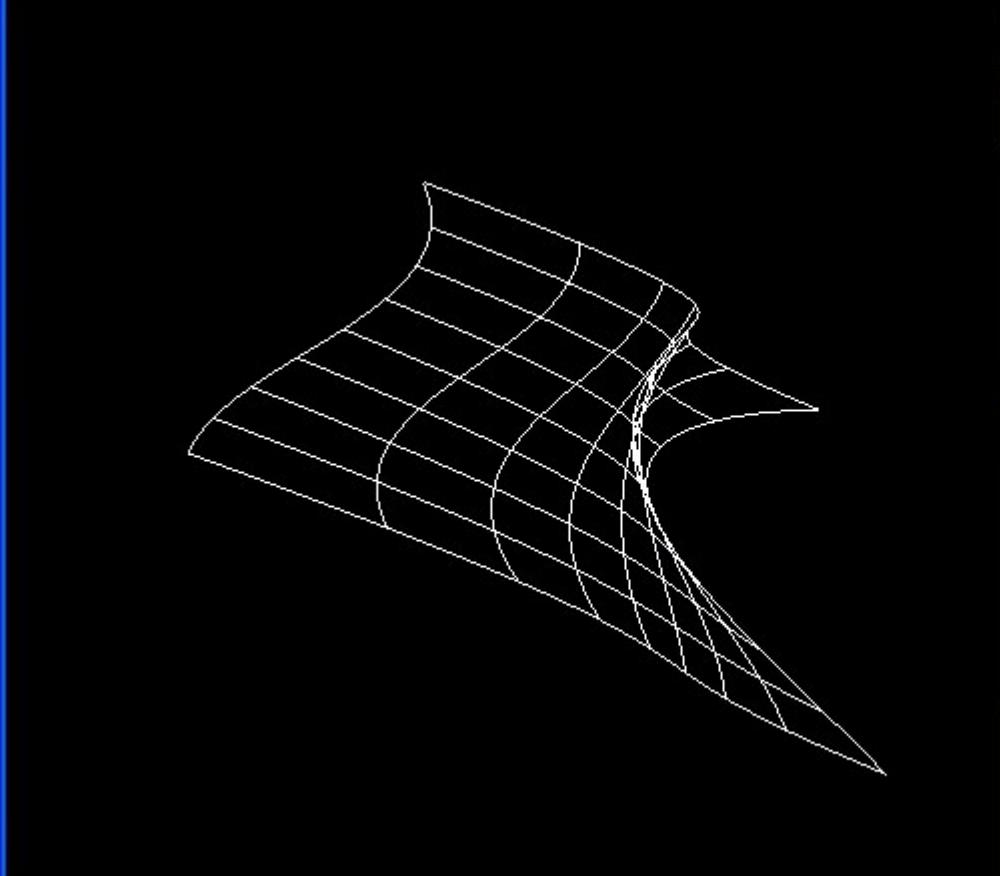
bezmesh.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program renders a lighted, filled Bezier surface,
using two-dimensional evaluators.

Demo:	bezsurf
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example bezsurf



The window title is "Tcl3D demo: OpenGL Red Book example bezsurf". The menu bar includes "RedBook" and "Demo scripts". The "Demo scripts" list contains several Tcl files, with "bezsurf.tcl" highlighted. The status bar at the bottom left shows "Key-Escape Exit" and "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

bezsurf.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program renders a wireframe Bezier surface,
using two-dimensional evaluators.

Demo:	blendeqn
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example blendeqn

Key-a	GL_FUNC_ADD
Key-s	GL_FUNC_SUBTRACT
Key-r	GL_FUNC_REVERSE_SUBTRACT
Key-m	GL_MIN
Key-x	GL_MAX
Key-Escape	Exit
blue square on yellow background	

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

blendeqn.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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Demonstrate the different blending functions available with the OpenGL imaging subset. This program demonstrates use of the glBlendEquation call.

The following keys change the selected blend equation function:

```
'a'  -> GL_FUNC_ADD
's'  -> GL_FUNC_SUBTRACT
'r'  -> GL_FUNC_REVERSE_SUBTRACT
'm'  -> GL_MIN
'x'  -> GL_MAX
```

Demo:	checker
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example checker

The screenshot shows a Windows application window titled "Tcl3D demo: OpenGL Red Book example checker". The window has a menu bar with "RedBook" selected. A list of "Demo scripts" is displayed on the right, including "checker.tcl" which is highlighted. Two 3D checkered rectangles are rendered in the main window.

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

checker.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program texture maps a checkerboard image onto
two rectangles.

If running this program on OpenGL 1.0, texture objects are
not used.

Demo:	clip
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example clip

RedBook

Demo scripts

- aapoly.tcl
- aapolyStride.tcl
- aargb.tcl
- accanti.tcl
- accpersp.tcl
- alpha.tcl
- alpha3D.tcl
- bezcurve.tcl
- bezmesh.tcl
- bezsurf.tcl
- blendeqn.tcl
- checker.tcl
- clip.tcl**
- colormat.tcl
- colormatrix.tcl
- colorable.tcl
- combiner.tcl
- convolution.tcl
- cube.tcl
- cubemap.tcl

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

clip.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program demonstrates arbitrary clipping planes.

Demo:	colormat
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example colormat

The window title bar says "Tcl3D demo: OpenGL Red Book example colormat". The menu bar includes "File", "Edit", "Help", and "RedBook". A toolbar below the menu has icons for "Info", "?", "Save", "Open", and "Exit". The main area shows a large sphere with a blue-to-white gradient reflection. To the right is a list of "Demo scripts" including: aapoly.tcl, aapolyStride.tcl, aargb.tcl, accanti.tcl, accpersp.tcl, alpha.tcl, alpha3D.tcl, bezcurve.tcl, bezmesh.tcl, bezsurf.tcl, blendeqn.tcl, checker.tcl, clip.tcl, colormat.tcl (which is selected and highlighted in blue), colormatrix.tcl, colortable.tcl, combiner.tcl, convolution.tcl, cube.tcl, and cubemap.tcl. At the bottom left, a status bar displays: "Mouse-1 Change red diffuse", "Mouse-2 Change green diffuse", "Mouse-3 Change blue diffuse", and "Key-Escape Exit". Below the status bar, it says "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

colormat.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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After initialization, the program will be in
ColorMaterial mode. Interaction: pressing the
mouse buttons will change the diffuse reflection values.

Demo:	colormatrix
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example colormatrix

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

colormatrix.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program uses the color matrix to exchange the color channels of an image.

Red → Green
Green → Blue
Blue → Red

Demo:	colortable
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example colortable

The screenshot shows a 3D rendering of a large, multi-story building with a dark, cloudy sky above it. The foreground is a flat, purple-tinted ground. A vertical menu on the right lists various demo scripts, with "colortable.tcl" highlighted.

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

colortable.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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Invert a passed block of pixels. This program illustrates the use of the glColorTable() function.

Demo:	combiner
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example combiner

The demo window title is "Tcl3D demo: OpenGL Red Book example combiner". The window has a menu bar with icons for information, help, file, and exit. The main area displays a 5x5 grid of colored squares on a black background, illustrating different OpenGL combiner functions. The right side of the window contains a list of demo scripts in a scrollable list box. The selected script is "combiner.tcl". The bottom left of the window shows key bindings: Key-Escape Exit. The bottom status bar indicates the system is running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13).

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

combiner.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program renders a variety of quads showing different effects of texture combiner functions.

The first row renders an untextured polygon (so you can compare the fragment colors) and then the 2 textures.
The second row shows several different combiner functions on a single texture: replace, modulate, add, add-signed, and subtract.
The third row shows the interpolate combiner function on a single texture with a constant color/alpha value, varying the amount of interpolation.
The fourth row uses multitexturing with two textures and different combiner functions.
The fifth row are some combiner experiments: using the scaling factor and reversing the order of subtraction

for a combination function.

Demo:	convolution
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example convolution

The screenshot shows a window titled "Tcl3D demo: OpenGL Red Book example convolution". The main area displays a 3D rendering of a mountainous landscape with a dark sky. To the right is a sidebar titled "RedBook" containing a list of "Demo scripts" with "convolution.tcl" selected. At the bottom left, there's a text box with keyboard shortcuts: "Key-h Horizontal filter", "Key-v Vertical filter", "Key-l Laplacian filter", and "Using the horizontal filter". A note at the bottom states "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)". Below the window, the file "convolution.tcl" is shown with its content, which includes copyright information and a note about using various 2D convolution filters.

```

Key-h Horizontal filter
Key-v Vertical filter
Key-l Laplacian filter
Using the horizontal filter

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

convolution.tcl

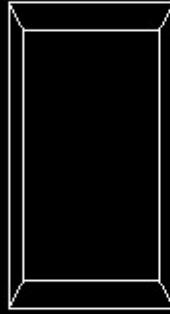
An example of the OpenGL red book modified to work with Tcl3D.
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The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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Use various 2D convolutions filters to find edges in an image.

```

Demo:	cube
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example cube



The window title bar says "Tcl3D demo: OpenGL Red Book example cube". The menu bar includes "File", "Edit", "View", "Help", and "RedBook". A toolbar with icons for "Info", "?", "Open", "Save", and "Close" is located above the menu bar. The main area shows a wireframe cube. To the right is a tree view labeled "Demo scripts" containing a list of files: colormatrix.tcl, colorable.tcl, combiner.tcl, convolution.tcl, cube.tcl (selected), cubemap.tcl, dof.tcl, double.tcl, drawf.tcl, feedback.tcl, fog.tcl, fogcoord.tcl, font.tcl, hello.tcl, histogram.tcl, image.tcl, light.tcl, lines.tcl, list.tcl, material.tcl. At the bottom left is a status bar with "Key-Escape Exit". Below the status bar is a message: "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

cube.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program demonstrates a single modeling transformation,
glScalef() and a single viewing transformation, gluLookAt().
A wireframe cube is rendered.

Demo:	cubemap
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example cubemap

RedBook

Demo scripts

- colormatrix.tcl
- colorable.tcl
- combiner.tcl
- convolution.tcl
- cube.tcl
- cubemap.tcl**
- dof.tcl
- double.tcl
- drawf.tcl
- feedback.tcl
- fog.tcl
- fogcoord.tcl
- font.tcl
- hello.tcl
- histogram.tcl
- image.tcl
- light.tcl
- lines.tcl
- list.tcl
- material.tcl

Key-f Move object forward
 Key-b Move object backward
 Key-Escape Exit

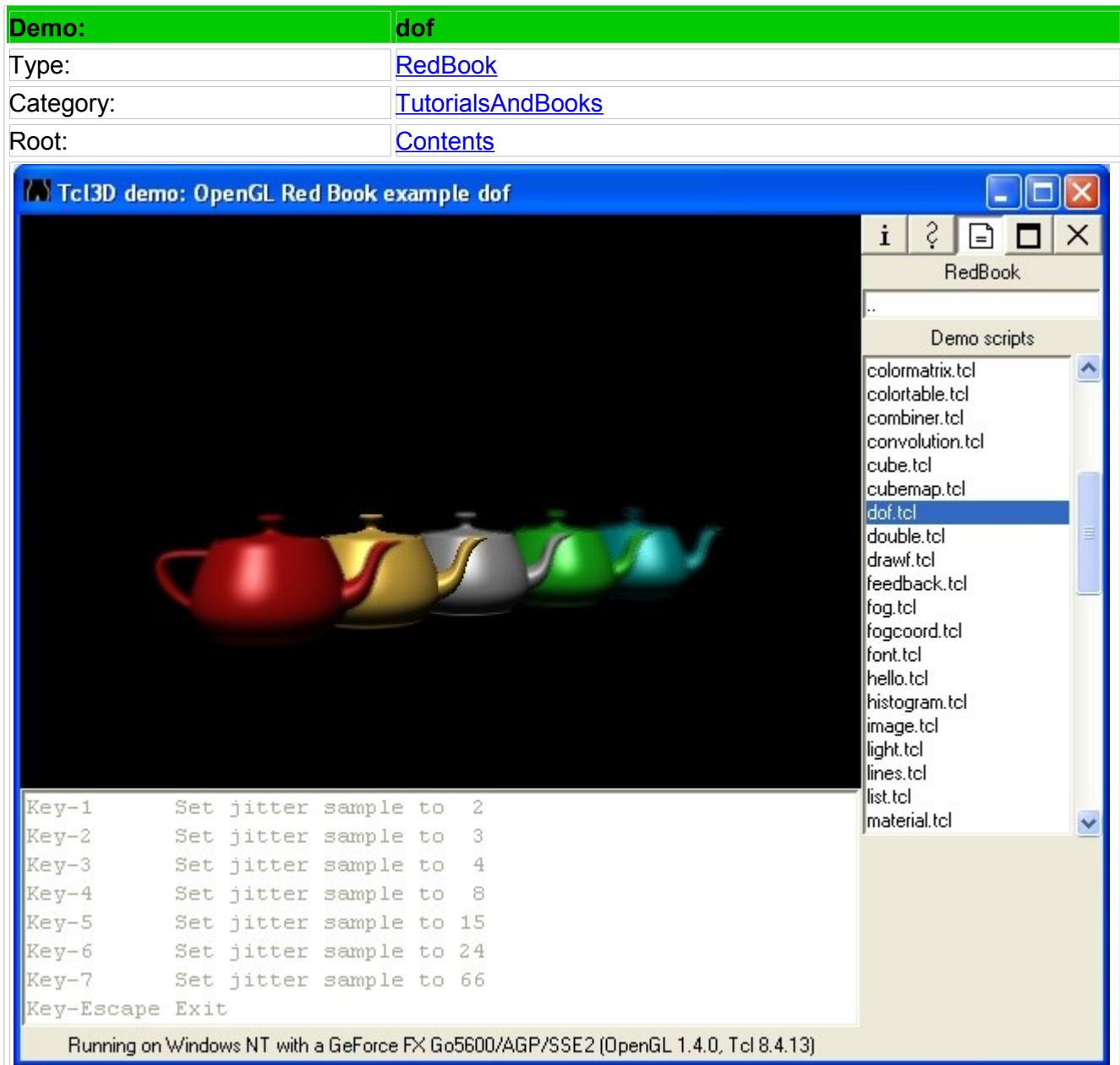
Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

cubemap.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program demonstrates cube map textures.
 Six different colored checker board textures are created and applied to a lit sphere.

Pressing the 'f' and 'b' keys translate the object forward and backward.



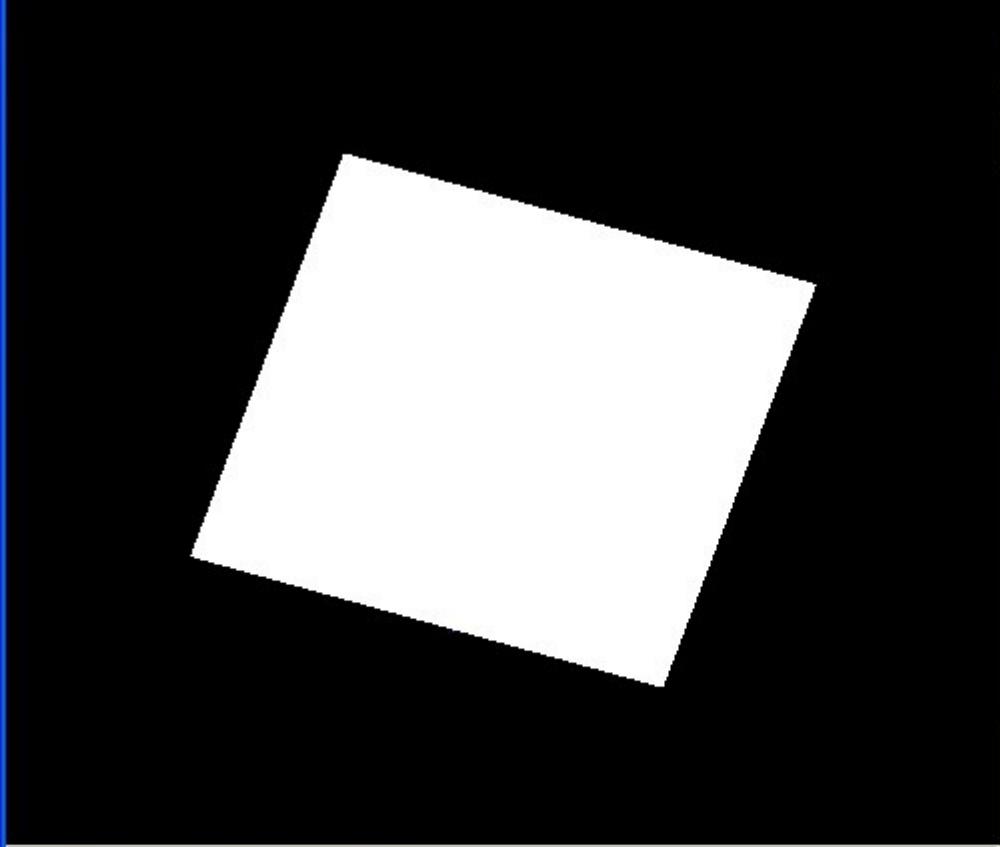
dof.tcl

An example of the OpenGL red book modified to work with Tcl3D.
 The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
 The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This program demonstrates use of the accumulation buffer to create an out-of-focus depth-of-field effect. The teapots are drawn several times into the accumulation buffer. The viewing volume is jittered, except at the focal point, where the viewing volume is at the same position, each time. In this case, the gold teapot remains in focus.

Demo:	double
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example double



RedBook

Demo scripts

- colormatrix.tcl
- colorable.tcl
- combiner.tcl
- convolution.tcl
- cube.tcl
- cubemap.tcl
- dof.tcl
- double.tcl**
- drawf.tcl
- feedback.tcl
- fog.tcl
- fogcoord.tcl
- font.tcl
- hello.tcl
- histogram.tcl
- image.tcl
- light.tcl
- lines.tcl
- list.tcl
- material.tcl

Mouse-1 Start animation
Mouse-2 Stop animation
Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

double.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This is a simple double buffered program.
Pressing the left mouse button rotates the rectangle.
Pressing the middle mouse button stops the rotation.



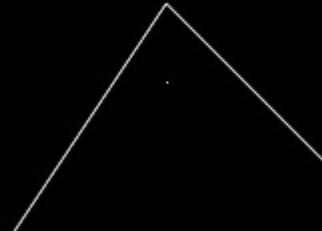
Demo:	feedback
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example feedback

Feedback Output

File Edit

```
GL_PASS_THROUGH_TOKEN
1.00
GL_PASS_THROUGH_TOKEN
2.00
GL_POINT_TOKEN
200.00 200.00 0.00 0.84 0.84 0.84 1.00
#
```



Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

feedback.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program demonstrates use of OpenGL feedback. First,
a lighting environment is set up and a few lines are drawn.
Then feedback mode is entered, and the same lines are
drawn. The results in the feedback buffer are printed.

Demo:	fog
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example fog

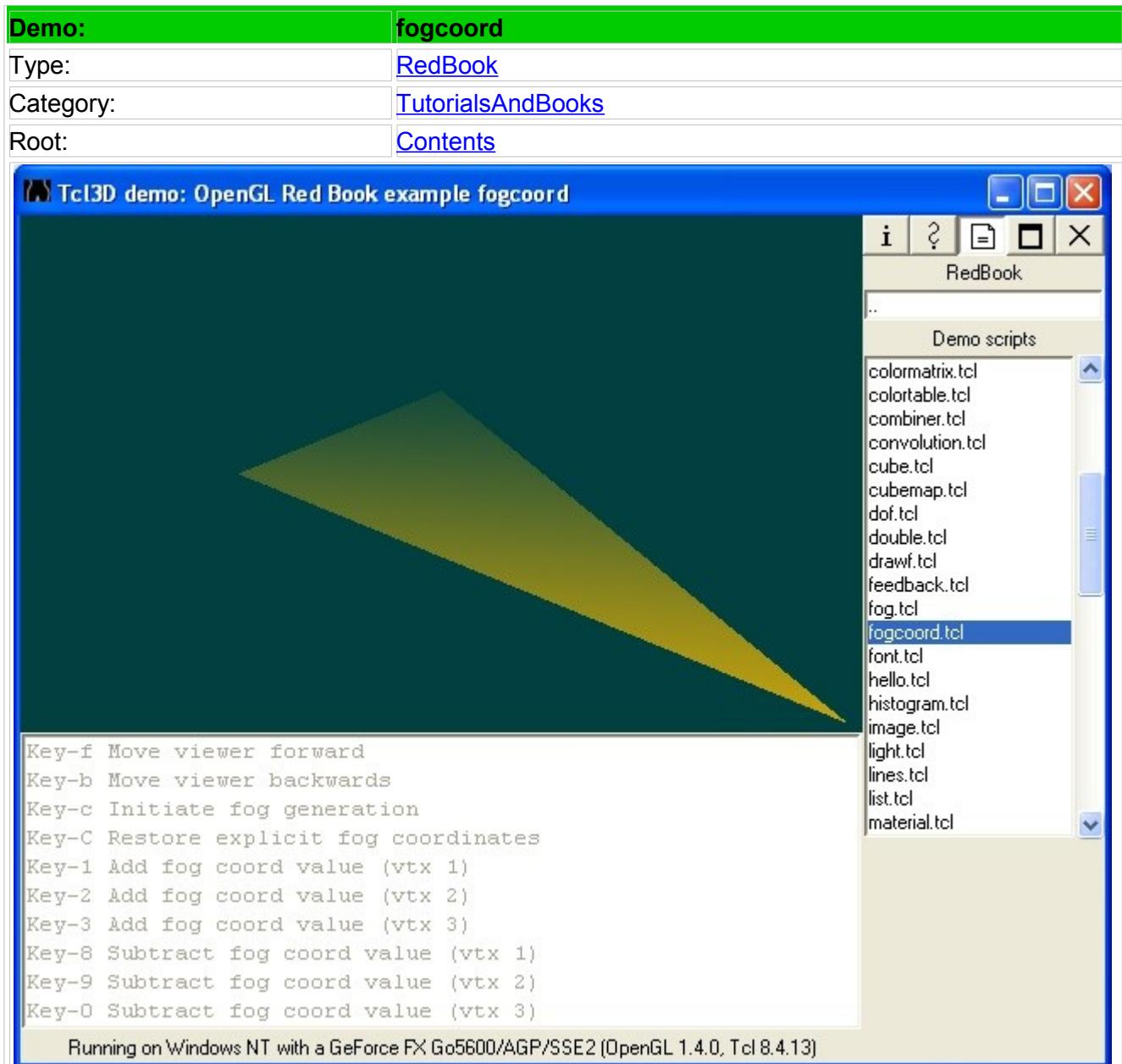
Key-f ToggleFog
Key-Escape Exit
Fog mode is GL_EXP

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

fog.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
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This program draws 5 red spheres, each at a different z distance from the eye, in different types of fog.
Pressing the f key chooses between 3 types of fog: exponential, exponential squared, and linear.
In this program, there is a fixed density value, as well as fixed start and end values for the linear fog.



fogcoord.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program demonstrates the use of explicit fog coordinates. You can press the keyboard and change the fog coordinate value at any vertex. You can also switch between using explicit fog coordinates and the default fog generation mode.

Pressing the 'f' and 'b' keys move the viewer forward and backwards.

Pressing 'c' initiates the default fog generation.
 Pressing capital 'C' restores explicit fog coordinates.
 Pressing '1', '2', '3', '8', '9', and '0' add or subtract from the fog coordinate values at one of the three vertices of the triangle.

Demo:	font
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example font

The screenshot shows a Windows-style application window titled "Tcl3D demo: OpenGL Red Book example font". The window has a menu bar with icons for information, help, file, edit, and exit. The main area contains a list of "Demo scripts" on the right side, including colormatrix.tcl, colorable.tcl, combiner.tcl, convolution.tcl, cube.tcl, cubemap.tcl, dof.tcl, double.tcl, drawf.tcl, feedback.tcl, fog.tcl, fogcoord.tcl, font.tcl (which is selected and highlighted in blue), hello.tcl, histogram.tcl, image.tcl, light.tcl, lines.tcl, list.tcl, and material.tcl. On the left, there is a rendered text sample in a black window: "THE QUICK BROWN FOX JUMPS OVER A LAZY DOG". At the bottom left, there is a key binding list: "Key-Escape Exit". Below that, a status message reads: "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)". The bottom section of the window displays the source code for "font.tcl".

```

font.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
See file LICENSE for complete license information.

Draws some text in a bitmapped font.  Uses glBitmap()
and other pixel routines.  Also demonstrates use of
display lists.

```

Demo:	hello
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example hello

RedBook

...

Demo scripts

- colormatrix.tcl
- colortable.tcl
- combiner.tcl
- convolution.tcl
- cube.tcl
- cubemap.tcl
- dof.tcl
- double.tcl
- drawf.tcl
- feedback.tcl
- fog.tcl
- fogcoord.tcl
- font.tcl
- hello.tcl**
- histogram.tcl
- image.tcl
- light.tcl
- lines.tcl
- list.tcl
- material.tcl

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

hello.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This is a simple, introductory OpenGL program.

Demo:	histogram
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example histogram

The screenshot shows a window titled "Tcl3D demo: OpenGL Red Book example histogram". Inside the window, there is a large image of a castle (Leeds Castle) across a body of water. In the foreground, there is a 3D histogram plot with three colored peaks (blue, red, green) overlaid on a grassy field. The window has a menu bar with icons for information, help, file, and exit. A toolbar below the menu bar has icons for zoom in, zoom out, and other functions. On the right side of the window, there is a sidebar titled "Demo scripts" containing a list of files: colormatrix.tcl, colorable.tcl, combiner.tcl, convolution.tcl, cube.tcl, cubemap.tcl, dof.tcl, double.tcl, drawf.tcl, feedback.tcl, fog.tcl, fogcoord.tcl, font.tcl, hello.tcl, histogram.tcl, image.tcl, light.tcl, lines.tcl, list.tcl, and material.tcl. The "histogram.tcl" file is highlighted with a blue selection bar. At the bottom of the window, there is a key binding list: "Key-s Toggle image display" and "Key-Escape Exit". A status bar at the very bottom of the window says "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

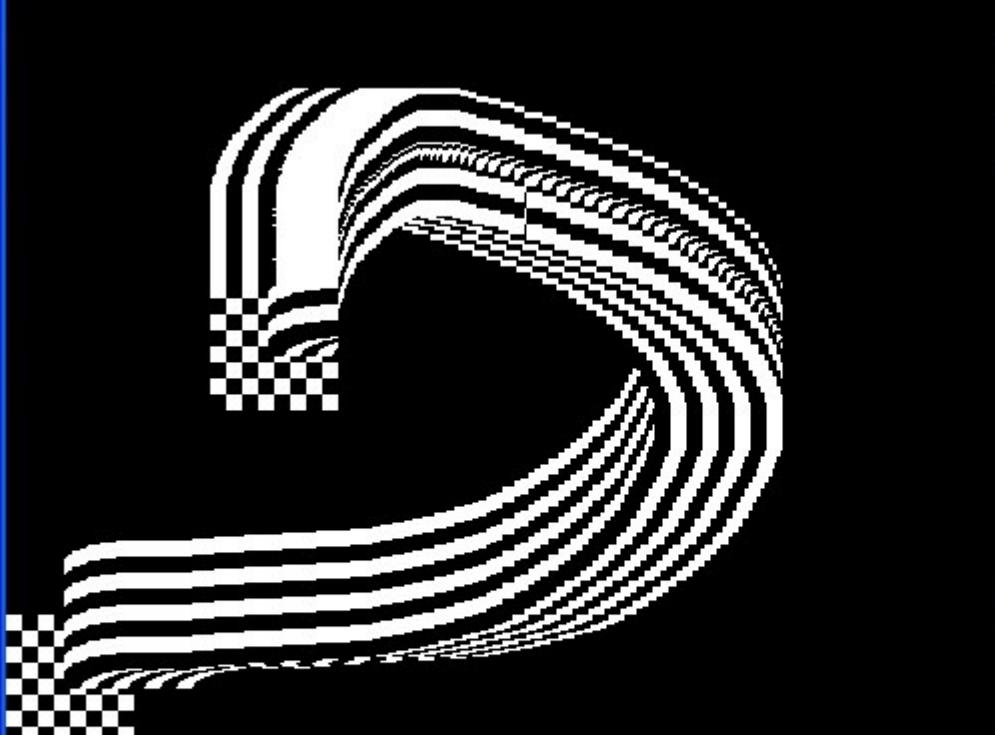
histogram.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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Compute the histogram of the image. This program illustrates the use of the glHistogram() function.

Demo:	image
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example image



The window title is "Tcl3D demo: OpenGL Red Book example image". The menu bar includes "RedBook" and "Demo scripts". The "Demo scripts" list contains the following files: colormatrix.tcl, colorable.tcl, combiner.tcl, convolution.tcl, cube.tcl, cubemap.tcl, dof.tcl, double.tcl, drawf.tcl, feedback.tcl, fog.tcl, fogcoord.tcl, font.tcl, hello.tcl, histogram.tcl, **image.tcl**, light.tcl, lines.tcl, list.tcl, material.tcl. A status bar at the bottom left shows key bindings: Key-r Reset zoom, Key-z Increment zoom, Key-Z Decrement zoom, Mouse-1 Paint, Key-Escape Exit. It also states "Initial zoom factor is 1.0". The status bar at the bottom right says "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

image.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
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This program demonstrates drawing pixels and shows the effect of `glDrawPixels()`, `glCopyPixels()`, and `glPixelZoom()`.
Interaction: moving the mouse while pressing the mouse button will copy the image in the lower-left corner of the window to the mouse position, using the current pixel zoom factors.
There is no attempt to prevent you from drawing over the original image. If you press the 'r' key, the original image and zoom factors are reset. If you press the 'z' or 'Z' keys, you change the zoom factors.

Demo:	light
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OsgHelp tutorial Light

Key-Escape Exit
Key-f Save SceneGraph to file
Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.6b1.1)

light.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program demonstrates the use of the OpenGL lighting model. A sphere is drawn using a grey material characteristic. A single light source illuminates the object.

Demo:	lines
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example lines

RedBook

...

Demo scripts

- histogram.tcl
- image.tcl
- light.tcl
- lines.tcl**
- list.tcl
- material.tcl
- minmax.tcl
- mipmap.tcl
- model.tcl
- movelight.tcl
- multisamp.tcl
- multitex.tcl
- myarray.tcl
- pickdepth.tcl
- picksquare.tcl
- planet.tcl
- pointp.tcl
- polyoff.tcl
- polys.tcl
- quadric.tcl

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

lines.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
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This program demonstrates geometric primitives and their attributes.

Demo:	list
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example list

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

list.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program demonstrates how to make and execute a display list. Note that attributes, such as current color and matrix, are changed.

Demo:	material
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example material

```

material.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program demonstrates the use of the GL lighting model.
Several objects are drawn using different material characteristics.
A single light source illuminates the objects.

```

Demo:	minmax
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example minmax

Tcl3D demos at a glance

Demo:	mipmap
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example mipmap

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

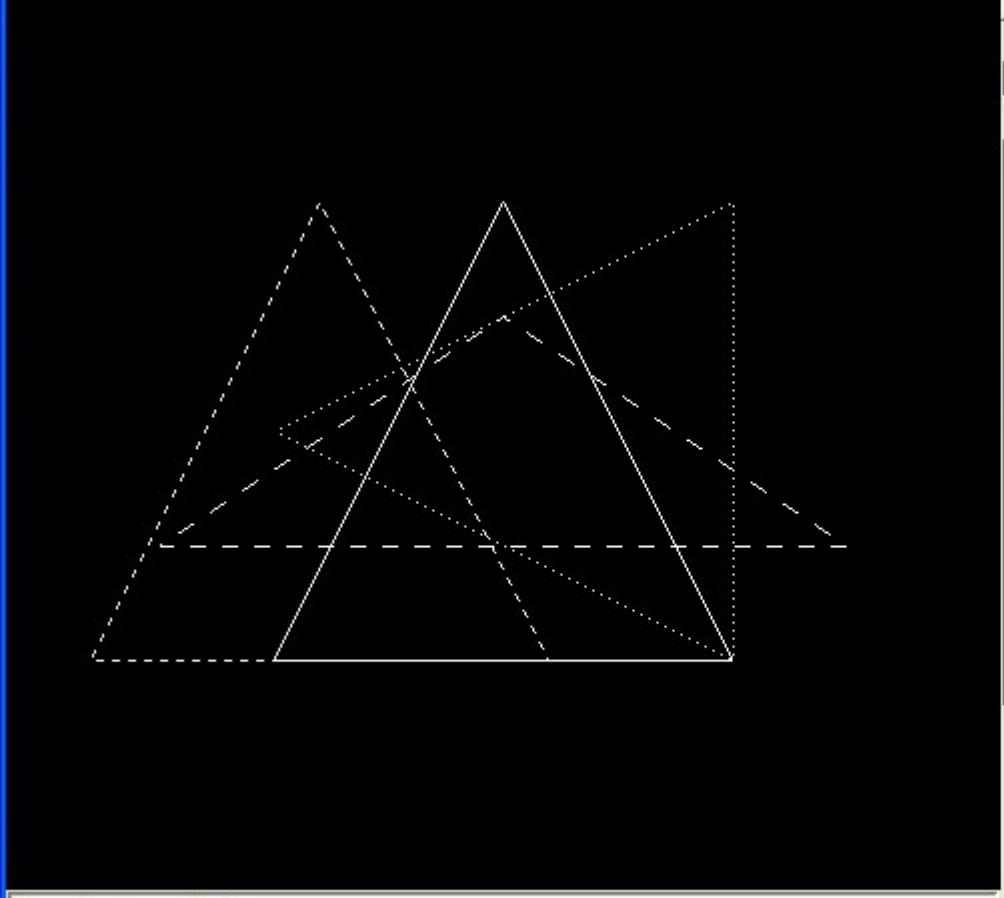
mipmap.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program demonstrates using mipmap for texture maps.
To overtly show the effect of mipmap, each mipmap reduction level has a solidly colored, contrasting texture image.
Thus, the quadrilateral which is drawn is drawn with several different colors.

Demo:	model
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example model



RedBook

Demo scripts

- histogram.tcl
- image.tcl
- light.tcl
- lines.tcl
- list.tcl
- material.tcl
- minmax.tcl
- mipmap.tcl
- model.tcl**
- movelight.tcl
- multisamp.tcl
- multitex.tcl
- mvarray.tcl
- pickdepth.tcl
- picksquare.tcl
- planet.tcl
- pointp.tcl
- polyoff.tcl
- polys.tcl
- quadric.tcl

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

model.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program demonstrates modeling transformations

Demo:	movelight
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example movelight

The screenshot shows a 3D rendering of a torus (donut shape) with a bright light source positioned behind it, creating a strong shadow on the inner surface. The window has a menu bar with icons for information, help, file, and exit. A toolbar below the menu bar contains icons for zoom in, zoom out, and other operations. On the right side, there is a list of demo scripts: histogram.tcl, image.tcl, light.tcl, lines.tcl, list.tcl, material.tcl, minmax.tcl, mipmap.tcl, model.tcl, movelight.tcl (which is selected and highlighted in blue), multisamp.tcl, multitex.tcl, myarray.tcl, pickdepth.tcl, picksquare.tcl, planet.tcl, pointp.tcl, polyoff.tcl, polys.tcl, and quadric.tcl. At the bottom left, there is a status bar with mouse and key interaction instructions: "Mouse-1 Move light" and "Key-Escape Exit". Below the status bar, it says "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

movelight.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program demonstrates when to issue lighting and transformation commands to render a model with a light which is moved by a modeling transformation (rotate or translate). The light position is reset after the modeling transformation is called. The eye position does not change.

A sphere is drawn using a grey material characteristic.
A single light source illuminates the object.

Interaction: pressing the left mouse button alters the modeling transformation (x rotation) by 30 degrees.
The scene is then redrawn with the light in a new position.

Demo:	multisamp
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example multisamp

Key-b> Toggle checkerboard background
Key-Escape Exit
Number of sample buffers is 1
Number of samples is 2

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

multisamp.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program draws shows how to use multisampling to draw anti-aliased geometric primitives. The same display list, a pinwheel of triangles and lines of varying widths, is rendered twice. Multisampling is enabled when the left side is drawn. Multisampling is disabled when the right side is drawn.

Pressing the 'b' key toggles drawing of the checkerboard background. Antialiasing is sometimes easier to see when objects are rendered over a contrasting background.

This demo uses the multisampling options built into tcl3dTogl starting from version 0.3.2.
Another way to set the number of samples is via the driver specific GUI under Windows, or by setting the environment variable `__GL_FSAA_MODE` under Linux.

Demo:	multitex
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

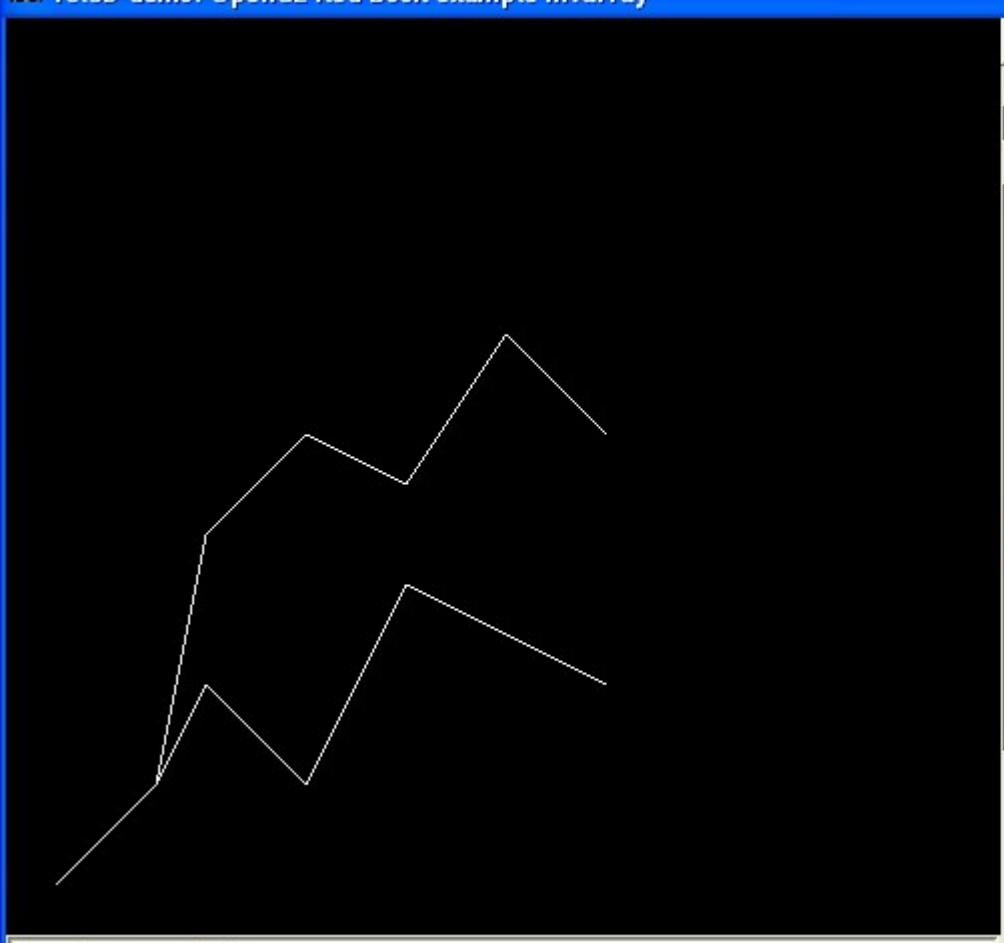
Tcl3D demo: OpenGL Red Book example multitex

multitex.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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Demo:	mvarray
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example mvarray



The window title is "Tcl3D demo: OpenGL Red Book example mvarray". The menu bar includes "File", "Edit", "Help", and "RedBook". A toolbar with icons for "New", "Open", "Save", "Print", and "Exit" is visible. The main area shows a 3D wireframe model of a mountain range. To the right is a file browser titled "Demo scripts" listing various .tcl files: histogram.tcl, image.tcl, light.tcl, lines.tcl, list.tcl, material.tcl, minmax.tcl, mipmap.tcl, model.tcl, movelight.tcl, multisamp.tcl, multitex.tcl, mvarray.tcl (which is selected), pickdepth.tcl, picksquare.tcl, planet.tcl, pointp.tcl, polyoff.tcl, polys.tcl, and quadric.tcl. At the bottom left is a keyboard status bar with "Key-Escape Exit". The status bar at the bottom center says "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

mvarray.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This program demonstrates multiple vertex arrays,
specifically the OpenGL routine glMultiDrawElements().

Demo:	pickdepth
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example pickdepth

Pickdepth Output

```

File Edit
number of names for hit = 1
z1 is 0.999999; z2 is 0.999999
the name is 2
number of names for hit = 1
z1 is -0.333334; z2 is -0.333334
the name is 3
#|
```

Key-Escape Exit
Mouse-1 Get pick results

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

pickdepth.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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Picking is demonstrated in this program. In rendering mode, three overlapping rectangles are drawn. When the left mouse button is pressed, selection mode is entered with the picking matrix. Rectangles which are drawn under the cursor position are "picked." Pay special attention to the depth value range, which is returned.

Demo:	picksquare
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example picksquare

Picksquare Output

```

names are 2 2
hits = 1
number of names for hit = 2
z1 is 0.999999; z2 is 0.999999
names are 0 1
#|
```

Key-Escape Exit
Mouse-1 Get pick results

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

picksquare.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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Use of multiple names and picking are demonstrated.
A 3x3 grid of squares is drawn. When the left mouse button is pressed, all squares under the cursor position have their color changed.

Demo:	planet
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example planet

Key-y	Increase year
Key-Y	Decrease year
Key-d	Increase day
Key-D	Decrease day
Key-Escape	Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

planet.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program shows how to composite modeling transformations
to draw translated and rotated models.
Interaction: pressing the d and y keys (day and year)
alters the rotation of the planet around the sun.

Demo:	pointp
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example pointp

Key-+	Increase point size
Key--	Decrease point size
Key-f	Move viewer forwards
Key-b	Move viewer backwards
Key-c	Constant attenuation
Key-l	Linear attenuation
Key-q	Quadratic attenuation
Key-Escape	Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

pointp.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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See file LICENSE for complete license information.

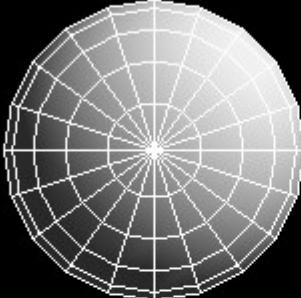
This program demonstrates point parameters and their effect on point primitives.
250 points are randomly generated within a 10 by 10 by 40 region, centered at the origin. In some modes (including the default), points that are closer to the viewer will appear larger.

Pressing the 'l', 'q', and 'c' keys switch the point parameters attenuation mode to linear, quadratic, or constant, respectively.
Pressing the 'f' and 'b' keys move the viewer forward and backwards. In either linear or quadratic attenuation mode, the distance from the viewer to the point will change the size of the point primitive.
Pressing the '+' and '-' keys will change the current point size. In this program, the point size is bounded, so it

will not get less than 2.0, nor greater than GL_POINT_SIZE_MAX.

Demo:	polyoff
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example polyoff



The window title bar says "Tcl3D demo: OpenGL Red Book example polyoff". The menu bar includes "File", "Edit", "Help", and "RedBook". A toolbar with icons for "i", "?", and file operations is present. The main pane shows the wireframe sphere. On the right, a sidebar titled "Demo scripts" lists several Tcl files: multisamp.tcl, multitex.tcl, mvarray.tcl, pickdepth.tcl, picksquare.tcl, planet.tcl, pointp.tcl, **polyoff.tcl**, polys.tcl, quadric.tcl, robot.tcl, scene.tcl, select.tcl, shadowmap.tcl, smooth.tcl, stencil.tcl, stroke.tcl, surface.tcl, teapots.tcl, and texbind.tcl. The "polyoff.tcl" file is selected. A status bar at the bottom indicates "Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)".

```

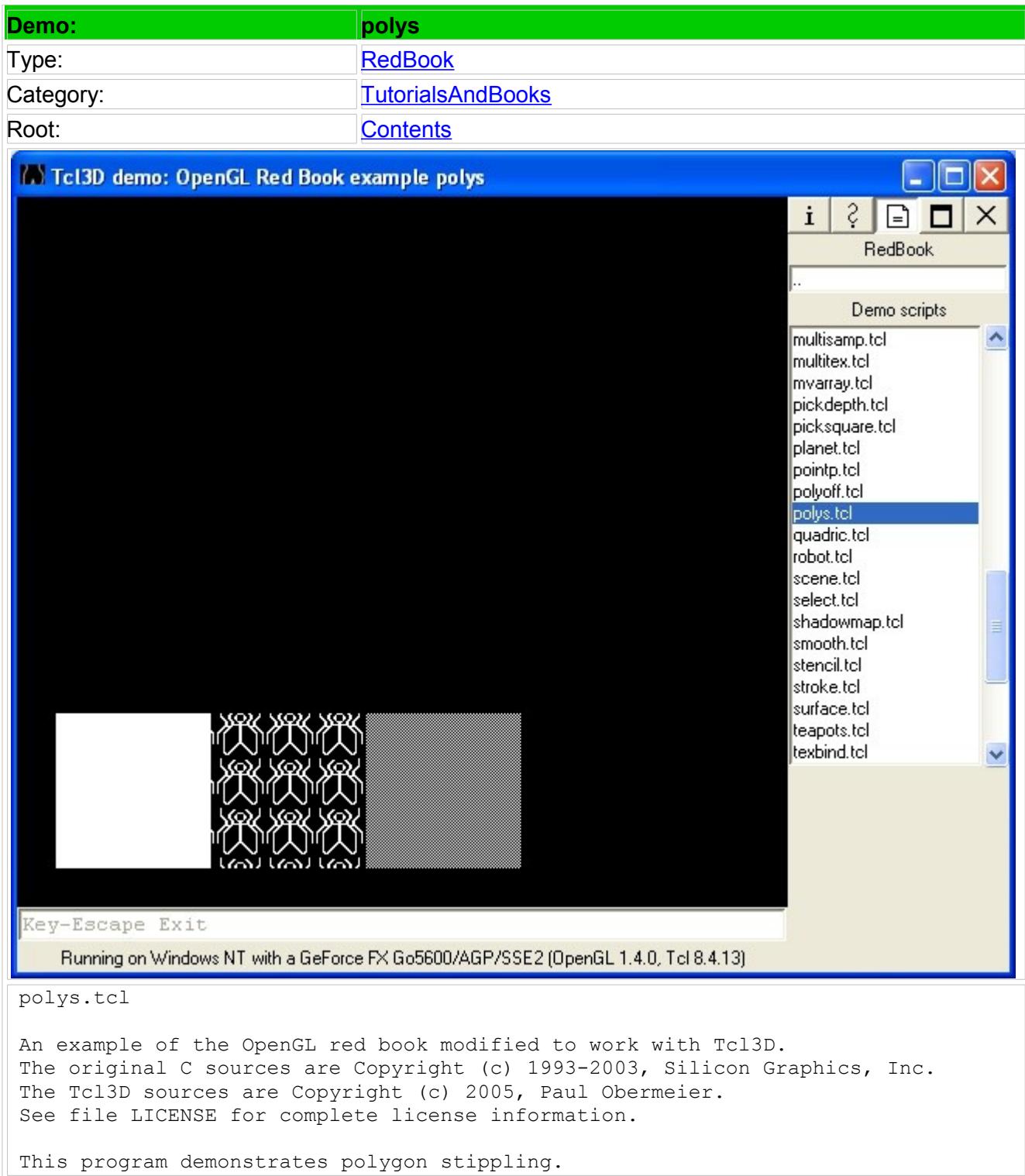
Key-t      DecrDistance
Key-T      IncrDistance
Key-f      DecrPolyFactors
Key-F      IncrPolyFactors
Key-u      DecrPolyUnits
Key-U      IncrPolyUnits
Mouse-1    IncrSpinX
Mouse-2    IncrSpinY
Key-Escape Exit
Initialized

```

polyoff.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
See file LICENSE for complete license information.

This program demonstrates polygon offset to draw a shaded polygon and its wireframe counterpart without ugly visual artifacts ("stitching").



Demo:	quadric
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example quadric

```

quadric.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This program demonstrates the use of some of the gluQuadric*
routines. Quadric objects are created with some quadric
properties and the callback routine to handle errors.
Note that the cylinder has no top or bottom and the circle
has a hole in it.

```

Demo:	robot
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example robot

Key-s	IncrShoulder 5
Key-S	IncrShoulder -5
Key-e	IncrElbow 5
Key-E	IncrElbow -5
Key-Escape	Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

robot.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
See file LICENSE for complete license information.

This program shows how to composite modeling transformations
to draw translated and rotated hierarchical models.
Interaction: pressing the s and e keys (shoulder and elbow)
alters the rotation of the robot arm.

Demo:	scene
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example scene

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

scene.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This program demonstrates the use of the GL lighting model.
Objects are drawn using a grey material characteristic.
A single light source illuminates the objects.

Demo:	select
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example select

Select Output

File Edit

```
hits = 2
number of names for hit = 1
z1 is 0.999999; z2 is 0.999999
the name is 1
number of names for hit = 1
z1 is 0; z2 is -1.07288e-006
the name is 3
```

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

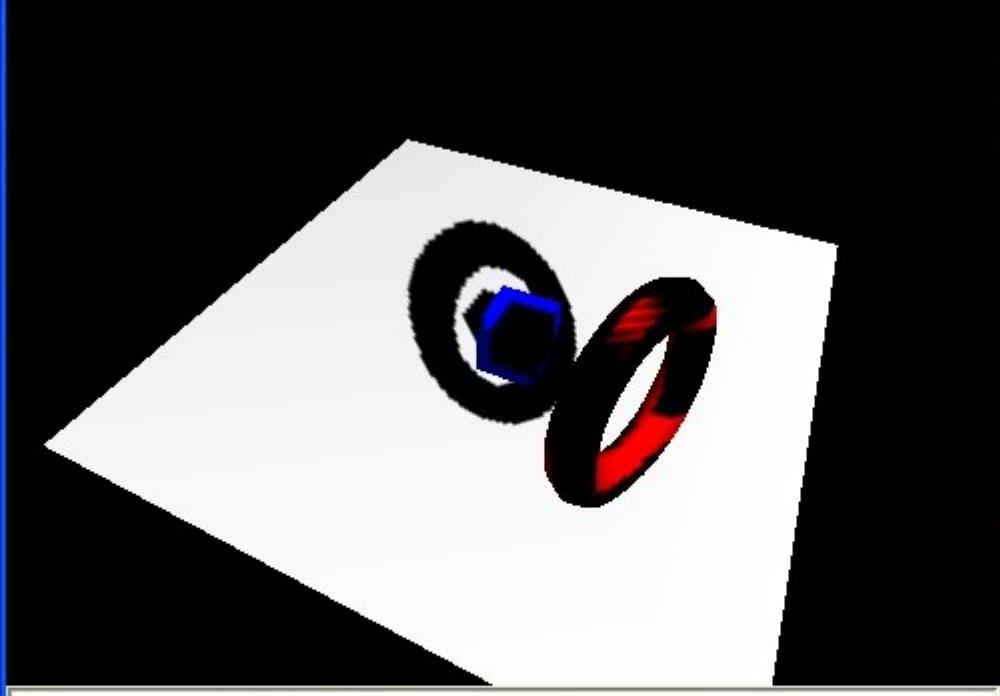
select.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
See file LICENSE for complete license information.

This is an illustration of the selection mode and name stack, which detects whether objects which collide with a viewing volume. First, four triangles and a rectangular box representing a viewing volume are drawn (drawScene routine). The green triangle and yellow triangles appear to lie within the viewing volume, but the red triangle appears to lie outside it. Then the selection mode is entered (selectObjects routine). Drawing to the screen ceases. To see if any collisions occur, the four triangles are called. In this example, the green triangle causes one hit with the name 1, and the yellow triangles cause one hit with the name 3.

Demo:	shadowmap
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example shadowmap



The demo window title bar says "Tcl3D demo: OpenGL Red Book example shadowmap". The menu bar includes "File", "Edit", "Help", and "RedBook". A toolbar with icons for "i", "?", "File", "Edit", and "X" is visible. The main area shows a 3D scene with a blue cube and a red torus on a white plane, with shadows cast by the objects. To the right is a "Demo scripts" list box containing the following files:
multisamp.tcl
multitex.tcl
mvarray.tcl
pickdepth.tcl
picksquare.tcl
planet.tcl
pointp.tcl
polyoff.tcl
polys.tcl
quadric.tcl
robot.tcl
scene.tcl
select.tcl
shadowmap.tcl (selected)
smooth.tcl
stencil.tcl
stroke.tcl
surface.tcl
teapots.tcl
texbind.tcl

Key-t Toggle Texture
Key-m Toggle CompareMode
Key-f Toggle FuncMode
Key-s Toggle ShowShadow
Key-p Toggle Animation
Key-Escape Exit
Texture on

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

shadowmap.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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Demo:	smooth
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example smooth

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

smooth.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This program demonstrates smooth shading.
A smooth shaded polygon is drawn in a 2-D projection.

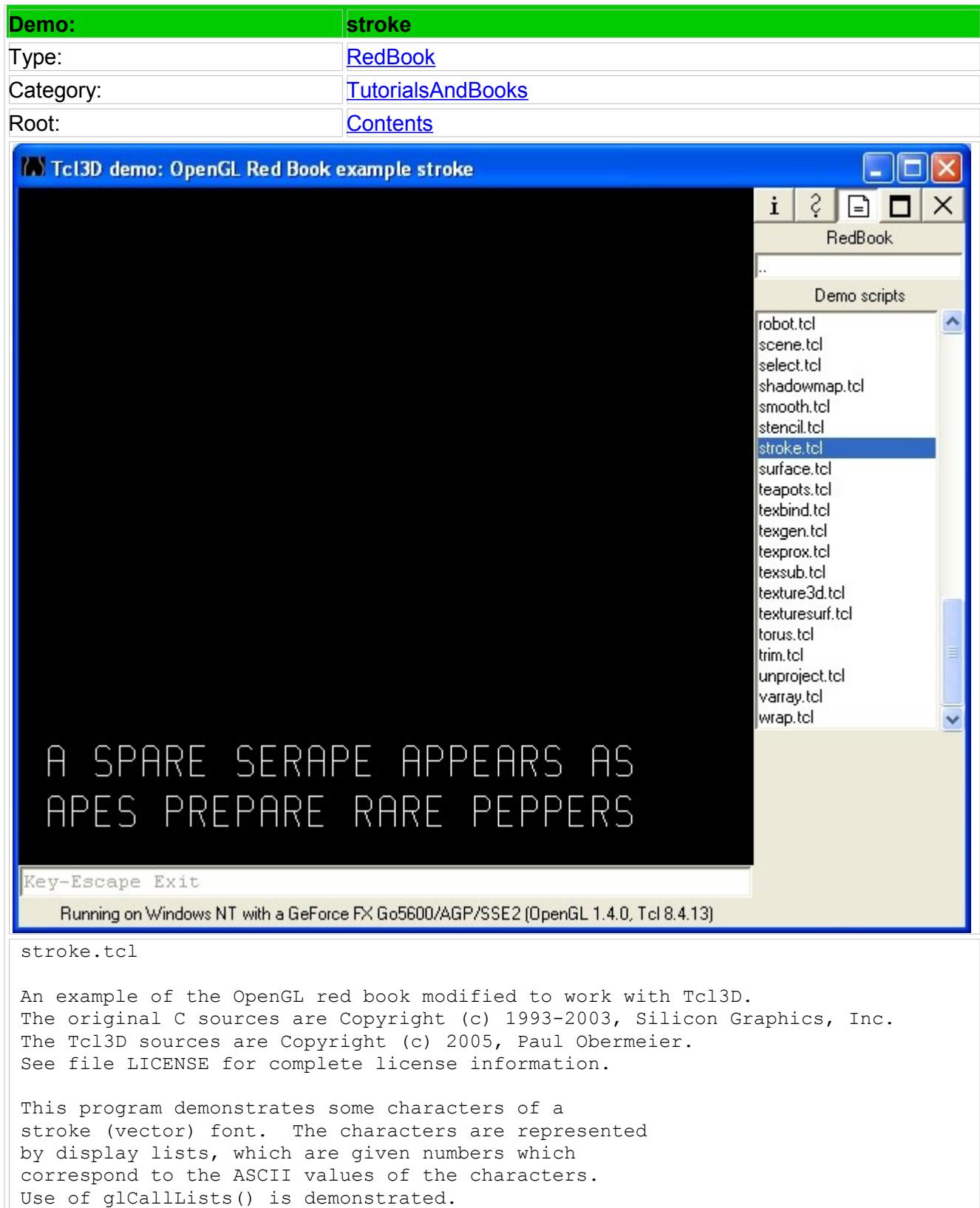
Demo:	stencil
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example stencil

stencil.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This program demonstrates use of the stencil buffer for masking nonrectangular regions.
Whenever the window is redrawn, a value of 1 is drawn into a diamond-shaped region in the stencil buffer.
Elsewhere in the stencil buffer, the value is 0.
Then a blue sphere is drawn where the stencil value is 1, and yellow torii are drawn where the stencil value is not 1.



Demo:	surface
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example surface

Key-c Toggle control points
Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

surface.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This program draws a NURBS surface in the shape of a symmetrical hill. The 'c' keyboard key allows you to toggle the visibility of the control points themselves. Note that some of the control points are hidden by the surface itself.

Demo:	teapots
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example teapots

RedBook

...

Demo scripts

- robot.tcl
- scene.tcl
- select.tcl
- shadowmap.tcl
- smooth.tcl
- stencil.tcl
- stroke.tcl
- surface.tcl
- teapots.tcl**
- texbind.tcl
- texgen.tcl
- texprox.tcl
- texsub.tcl
- texture3d.tcl
- texturesurf.tcl
- torus.tcl
- trim.tcl
- unproject.tcl
- varray.tcl
- wrap.tcl

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

teapots.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This program demonstrates lots of material properties.
A single light source illuminates the objects.

Demo:	texbind
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example texbind

The window title is "Tcl3D demo: OpenGL Red Book example texbind". The menu bar includes "File", "Edit", "Help", and "RedBook". A toolbar with icons for "i", "?", "File", "Edit", and "X" is visible. The main area shows two 3D models with checkered textures. The left model is a cube with a black and white checkered texture. The right model is a smaller cube with a red and black checkered texture. To the right of the models is a list of "Demo scripts" in a scrollable list box. The script "texbind.tcl" is highlighted with a blue selection bar. The list includes: robot.tcl, scene.tcl, select.tcl, shadowmap.tcl, smooth.tcl, stencil.tcl, stroke.tcl, surface.tcl, teapots.tcl, texbind.tcl, texgen.tcl, texprox.tcl, texsub.tcl, texture3d.tcl, texturesurf.tcl, torus.tcl, trim.tcl, unproject.tcl, varray.tcl, and wrap.tcl.

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

texbind.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This program demonstrates using glBindTexture() by
creating and managing two textures.

Demo:	texgen
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example texgen

Key-e	SetEyeLinear
Key-o	SetObjLinear
Key-s	SetSlanted
Key-x	SetZero
Key-Escape	Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

texgen.c

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
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This program draws a texture mapped teapot with automatically generated texture coordinates. The texture is rendered as stripes on the teapot. Initially, the object is drawn with texture coordinates based upon the object coordinates of the vertex and distance from the plane $x = 0$. Pressing the 'e' key changes the coordinate generation to eye coordinates of the vertex. Pressing the 'o' key switches it back to the object coordinates. Pressing the 's' key changes the plane to a slanted one ($x + y + z = 0$). Pressing the 'x' key switches it back to $x = 0$.

Demo:	texprox
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example texprox

Key-Escape Exit
proxyComponents are 32856
proxy allocation succeeded
proxyComponents are 32859
proxy allocation succeeded

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

texprox.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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The brief program illustrates use of texture proxies.
This program only prints out some messages about whether certain size textures are supported and then exits.

Demo:	texsub
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example texsub

Key-s Set Subtexture
Key-r Reset
Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

texsub.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This program texture maps a checkerboard image onto two rectangles. This program clamps the texture, if the texture coordinates fall outside 0.0 and 1.0. If the s key is pressed, a texture subimage is used to alter the original texture. If the r key is pressed, the original texture is restored.

Demo:	texture3d
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example texture3d

texture3d.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program demonstrates using a three-dimensional texture.
It creates a 3D texture and then renders two rectangles
with different texture coordinates to obtain different
"slices" of the 3D texture.

Demo:	texturesurf
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example texturesurf

RedBook

... Demo scripts

robot.tcl
scene.tcl
select.tcl
shadowmap.tcl
smooth.tcl
stencil.tcl
stroke.tcl
surface.tcl
teapots.tcl
texbind.tcl
texgen.tcl
texprox.tcl
texsub.tcl
texture3d.tcl
texturesurf.tcl
torus.tcl
trim.tcl
unproject.tcl
varray.tcl
wrap.tcl

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

texturesurf.tcl

An example of the OpenGL red book modified to work with Tcl3D.
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This program uses evaluators to generate a curved
surface and automatically generated texture coordinates.

Demo:	torus
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example torus

RedBook

Demo scripts

- robot.tcl
- scene.tcl
- select.tcl
- shadowmap.tcl
- smooth.tcl
- stencil.tcl
- stroke.tcl
- surface.tcl
- teapots.tcl
- texbind.tcl
- texgen.tcl
- texprox.tcl
- texsub.tcl
- texture3d.tcl
- texturesurf.tcl
- torus.tcl**
- trim.tcl
- unproject.tcl
- varray.tcl
- wrap.tcl

Key-x Rotate around X
Key-y Rotate around Y
Key-i Reset Transformations
Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

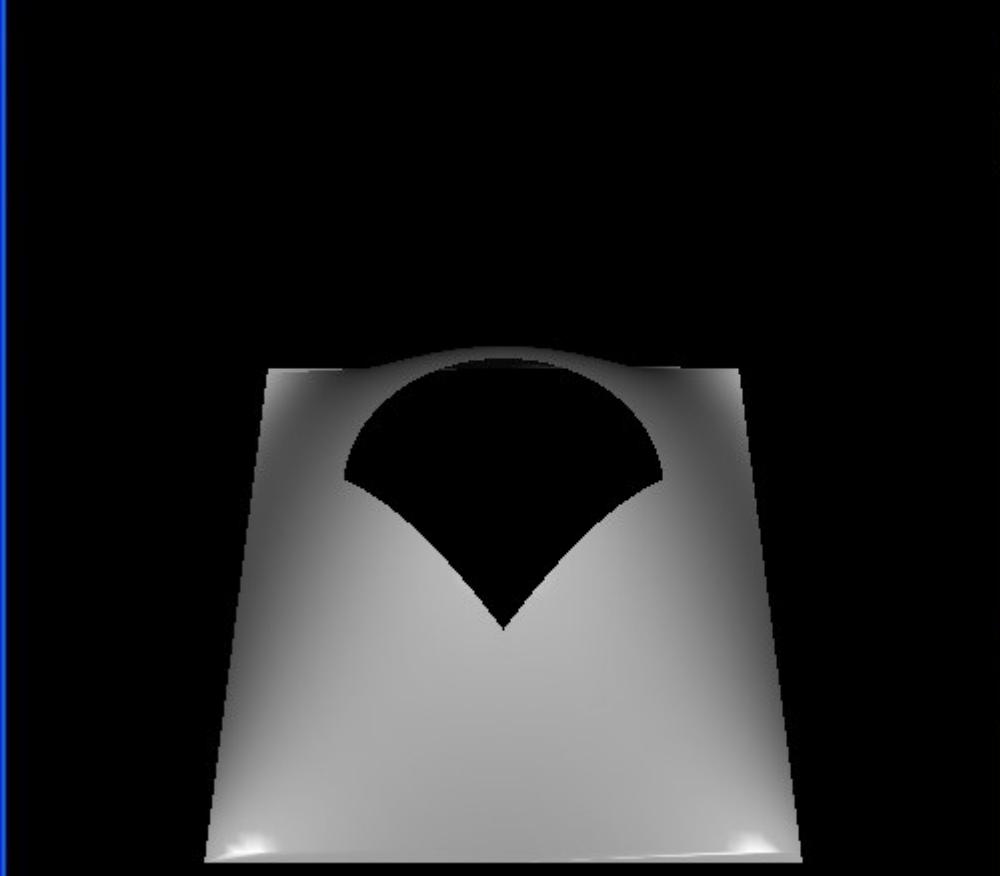
torus.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This program demonstrates the creation of a display list.

Demo:	trim
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example trim



RedBook

...

Demo scripts

- robot.tcl
- scene.tcl
- select.tcl
- shadowmap.tcl
- smooth.tcl
- stencil.tcl
- stroke.tcl
- surface.tcl
- teapots.tcl
- texbind.tcl
- texgen.tcl
- texprox.tcl
- texsub.tcl
- texture3d.tcl
- texturesurf.tcl
- torus.tcl
- trim.tcl**
- unproject.tcl
- varray.tcl
- wrap.tcl

Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

trim.tcl

An example of the OpenGL red book modified to work with Tcl3D.
The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
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This program draws a NURBS surface in the shape of a symmetrical hill, using both a NURBS curve and pwl (piecewise linear) curve to trim part of the surface.

Demo:	unproject
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example unproject

Unproject Output

File Edit

World coords at z=1.0 are (-36.912870, -34.846499, -99.999894)
 Coordinates at cursor are (113, 327)
 World coords at z=0.0 are (-0.254539, 0.200062, -1.000000)
 World coords at z=1.0 are (-25.453913, 20.006211, -99.999894)
 Coordinates at cursor are (345, 99)
 World coords at z=0.0 are (0.181277, -0.228240, -1.000000)
 World coords at z=1.0 are (18.127694, -22.823987, -99.999894)

.. Data
 Demo scripts

- robot.tcl
- scene.tcl
- select.tcl
- shadowmap.tcl
- smooth.tcl
- stencil.tcl
- stroke.tcl
- surface.tcl
- teapots.tcl
- texbind.tcl
- texgen.tcl
- texprox.tcl
- texsub.tcl
- texture3d.tcl
- texturesurf.tcl
- torus.tcl
- trim.tcl
- unproject.tcl**
- varray.tcl
- wrap.tcl

Key-Escape Exit
 Mouse-1 Get pick results

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

unproject.tcl

An example of the OpenGL red book modified to work with Tcl3D.
 The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
 The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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When the left mouse button is pressed, this program
 reads the mouse position and determines two 3D points
 from which it was transformed. Very little is displayed.

Demo:	varray
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example varray

RedBook

Demo scripts

- robot.tcl
- scene.tcl
- select.tcl
- shadowmap.tcl
- smooth.tcl
- stencil.tcl
- stroke.tcl
- surface.tcl
- teapots.tcl
- texbind.tcl
- texgen.tcl
- texprox.tcl
- texsub.tcl
- texture3d.tcl
- texturesurf.tcl
- torus.tcl
- trim.tcl
- unproject.tcl
- varray.tcl**
- wrap.tcl

Mouse-1 Toggle setup method
 Mouse-2 Toggle deref method
 Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

varray.tcl

An example of the OpenGL red book modified to work with Tcl3D.
 The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
 The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
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This program demonstrates vertex arrays.

Demo:	wrap
Type:	RedBook
Category:	TutorialsAndBooks
Root:	Contents

Tcl3D demo: OpenGL Red Book example wrap

RedBook

Demo scripts

- robot.tcl
- scene.tcl
- select.tcl
- shadowmap.tcl
- smooth.tcl
- stencil.tcl
- stroke.tcl
- surface.tcl
- teapots.tcl
- texbind.tcl
- texgen.tcl
- texprox.tcl
- texsub.tcl
- texture3d.tcl
- texturesurf.tcl
- torus.tcl
- trim.tcl
- unproject.tcl
- varray.tcl
- wrap.tcl**

Key-s TexParameter S_CLAMP
 Key-S TexParameter S_REPEAT
 Key-t TexParameter T_CLAMP
 Key-T TexParameter T_REPEAT
 Key-Escape Exit

Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)

wrap.tcl

An example of the OpenGL red book modified to work with Tcl3D.
 The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.
 The Tcl3D sources are Copyright (c) 2005, Paul Obermeier.
 See file LICENSE for complete license information.

This program texture maps a checkerboard image onto two rectangles. This program demonstrates the wrapping modes, if the texture coordinates fall outside 0.0 and 1.0. Interaction: Pressing the 's' and 'S' keys switch the wrapping between clamping and repeating for the s parameter. The 't' and 'T' keys control the wrapping for the t parameter.

If running this program on OpenGL 1.0, texture objects are not used.

Category:	OpenSceneGraph
Root:	Contents
Types:	Cubos Locos Foping Tutorials NPS-Tutorials OsgHelp QuickStartGuide

Type:	CubosLocos
Category:	OpenSceneGraph
Root:	Contents
Some of the OpenSceneGraph tutorials from CubosLocos have been ported to run with Tcl3D.	
Original sources available at: http://www.cuboslocos.com/	
Available demos	
	
earth	

Demo:	earth
Type:	CubosLocos
Category:	OpenSceneGraph
Root:	Contents

X Tcl3D demo: CubosLocos tutorial PlanetEarth 



Normal | Safe **Debug**

CubosLocos

...

Demo scripts

earth.tcl

solar.tcl

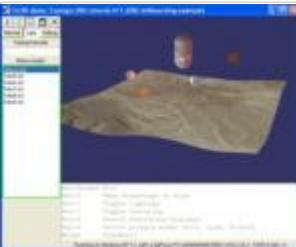
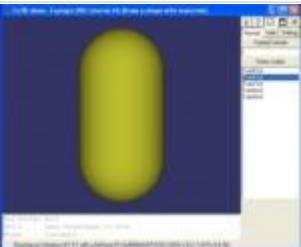
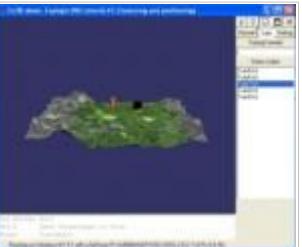
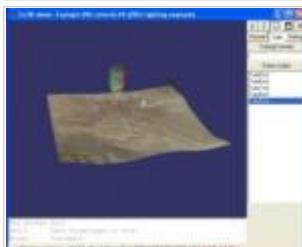
Key-Escape Exit
Key-f Save SceneGraph to file
Mouse Trackball

Running on Linux 2.6.18.2-34-default with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.14)

earth.tcl

Original C++ code by Katja Treiber and Matthias Schmidt.
See www.cuboslocos.com for the original files.

Modified for Tcl3D by Paul Obermeier 2009/08/30.
See www.tcl3d.org for the Tcl3D extension.

Type:	FopingTutorials		
Category:	OpenSceneGraph		
Root:	Contents		
Some of the OpenSceneGraph tutorials from Franklin Foping have been ported to run with Tcl3D.			
Original	sources	available	at:
http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials/			
Available demos			
			
Tuto11	Tuto5	Tuto6	Tuto7
			
Tuto8	Tuto9		

Demo:	Tuto11
Type:	FopingTutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Foping's OSG tutorial #11 (OSG billboard example)

The screenshot shows a 3D rendering of a scene with a textured ground plane. On the ground, there are several spheres of different sizes and colors (red, white, grey) and a single orange cube. In the air, there is a vertical cylinder. The left side of the window has a file browser titled "FopingTutorials" showing a list of files: Tuto11.tcl, Tuto5.tcl, Tuto6.tcl, Tuto7.tcl, Tuto8.tcl, and Tuto9.tcl. The "Tuto11.tcl" file is highlighted. At the bottom, there is a key binding list and a note about the system configuration.

```

Key-Escape Exit
Key-f      Save SceneGraph to file
Key-l      Toggle lighting
Key-t      Toggle texturing
Key-s      Switch statistics displays
Key-w      Switch polygon modes (Fill, Line, Points)
Mouse     Trackball

```

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tk/Tcl 8.6b1.1)

Tuto11.tcl: A billboard effect

This tutorial will extend the previous one on lighting by adding two billboard quads. These are also textured and shaded.

Original C++ code by Franklin Foping.
See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/06/10.
See www.tcl3d.org for the Tcl3D extension.

Demo:	Tuto5
Type:	FopingTutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Foping's OSG tutorial #5 (Draw a shape)

Key-Escape Exit
 Key-f Save SceneGraph to file
 Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)

Tuto5.tcl: Draw a shape

Original C++ code by Franklin Foping.
 See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/03/20.
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Tuto6
Type:	FopingTutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Foping's OSG tutorial #6 (Draw a shape with materials)

Key-Escape Exit
Key-f Save SceneGraph to file
Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)

Tuto6.tcl: Draw a shape with materials.

Original C++ code by Franklin Foping.
See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	Tuto7
Type:	FopingTutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Foping's OSG tutorial #7 (Texturing and positioning)

Key-Escape Exit
Key-f Save SceneGraph to file
Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)

Tuto7.tcl: Texturing and positioning

Original C++ code by Franklin Foping.
See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	Tuto8
Type:	FopingTutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Foping's OSG tutorial #8 (Draw a shape with fog)

Key-Escape Exit
 Key-f Save SceneGraph to file
 Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)

Tuto8.tcl: Draw a shape with fog.

Original C++ code by Franklin Foping.
 See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/03/20.
 See www.tcl3d.org for the Tcl3D extension.

Demo:	Tuto9
Type:	FopingTutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Foping's OSG tutorial #9 (OSG Lighting example)

Key-Escape Exit
Key-f Save SceneGraph to file
Mouse Trackball

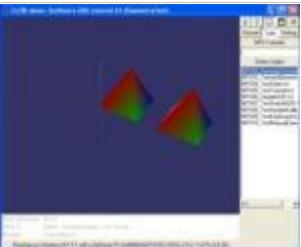
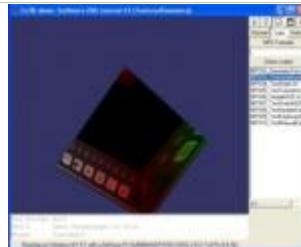
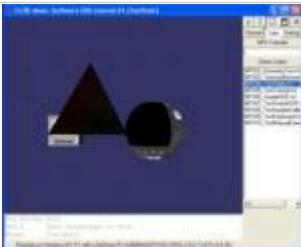
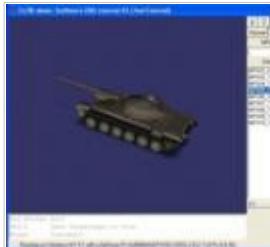
Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)

Tuto9.tcl: OSG Lighting example

This simple example will show how to easily shade your scene. We will be making use of 2 light sources, one is red and the other one is green. We will also render light markers to help you locate light source in the scene. This is helpful for debugging purposes.

Original C++ code by Franklin Foping.
See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/03/20.
See www.tcl3d.org for the Tcl3D extension.

Type:	NPS-Tutorials		
Category:	OpenSceneGraph		
Root:	Contents		
Some of the OpenSceneGraph tutorials from Joseph Sullivan have been ported to run with Tcl3D. Original sources available at: http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials/			
Available demos			
NPS02_GeometryTest	NPS03_TexturedGeometry	NPS04_TestState	NPS05_TestTutorial
			
NPS06_SimpleHUD	NPS07_TestSwitchDOF	NPS08_TestUpdateCallback	NPS09_TestKeyboard
			
NPS10_TestManualCamera			

Demo:	NPS02_GeometryTest
Type:	NPS-Tutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Sullivan's OSG tutorial #2 (GeometryTest)

Normal Safe Debug

NPS-Tutorials

..

Demo scripts

- NPS02_GeometryTest.tcl
- NPS03_TexturedGeomet
- NPS04_TestState.tcl
- NPS05_TestTutorial.tcl
- NPS06_SimpleHUD.tcl
- NPS07_TestSwitchDOF.tcl
- NPS08_TestUpdateCallb
- NPS09_TestKeyboard.tcl
- NPS10_TestManualCam

Key-Escape Exit
Key-f Save SceneGraph to file
Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)

NPS02_GeometryTest.tcl

Original C++ code by Joseph Sullivan.
See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	NPS03_TexturedGeometry
Type:	NPS-Tutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Sullivan's OSG tutorial #3 (TexturedGeometry)

Key-Escape Exit
Key-f Save SceneGraph to file
Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)

NPS03_TexturedGeometry.tcl

Original C++ code by Joseph Sullivan.
See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	NPS04_TestState
Type:	NPS-Tutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Sullivan's OSG tutorial #4 (TestState)

Normal Safe Debug

NPS-Tutorials

..

Demo scripts

- NPS02_GeometryTest.tcl
- NPS03_TexturedGeomet
- NPS04_TestState.tcl**
- NPS05_TestTutorial.tcl
- NPS06_SimpleHUD.tcl
- NPS07_TestSwitchDOF.t
- NPS08_TestUpdateCallb
- NPS09_TestKeyboard.tcl
- NPS10_TestManualCame

Key-Escape Exit
Key-f Save SceneGraph to file
Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)

NPS04_TestState.tcl

Original C++ code by Joseph Sullivan.
See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	NPS05_TestTutorial
Type:	NPS-Tutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Sullivan's OSG tutorial #5 (TestTutorial)



The window title bar says "Tcl3D demo: Sullivan's OSG tutorial #5 (TestTutorial)". The menu bar includes "File", "Edit", "Safe", and "Debug". A toolbar below the menu has icons for "Normal", "Safe", and "Debug". The main pane shows a 3D scene with a tank model. To the right is a file browser titled "Demo scripts" showing a list of files: NPS02_GeometryTest.tcl, NPS03_TexturedGeomet, NPS04_TestState.tcl, **NPS05_TestTutorial.tcl**, NPS06_SimpleHUD.tcl, NPS07_TestSwitchDOF.tcl, NPS08_TestUpdateCallb, NPS09_TestKeyboard.tcl, and NPS10_TestManualCam. At the bottom left is a keyboard status bar with "Key-Escape Exit", "Key-f Save SceneGraph to file", and "Mouse Trackball". A message at the bottom center says "Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)".

NPS05_TestTutorial.tcl

Original C++ code by Joseph Sullivan.
See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	NPS06_SimpleHUD
Type:	NPS-Tutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Sullivan's OSG tutorial #6 (SimpleHUD)

NPS06_SimpleHUD.tcl

Original C++ code by Joseph Sullivan.
See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	NPS07_TestSwitchDOF
Type:	NPS-Tutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Sullivan's OSG tutorial #7 (TestSwitchDOF)

NPS07_TestSwitchDOF.tcl

Original C++ code by Joseph Sullivan.
See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	NPS08_TestUpdateCallback
Type:	NPS-Tutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Sullivan's OSG tutorial #8 (TestUpdateCallback)



The window title bar says "Tcl3D demo: Sullivan's OSG tutorial #8 (TestUpdateCallback)". The menu bar includes "File", "Edit", "View", "Help", and "Normal" (selected), "Safe", and "Debug". A sidebar titled "NPS-Tutorials" lists "Demo scripts" with items: NPS02_GeometryTest.tcl, NPS03_TexturedGeomet, NPS04_TestState.tcl, NPS05_TestTutorial.tcl, NPS06_SimpleHUD.tcl, NPS07_TestSwitchDOF.tcl, **NPS08_TestUpdateCallback.tcl** (selected), NPS09_TestKeyboard.tcl, and NPS10_TestManualCamer. A status bar at the bottom shows keyboard shortcuts: Key-Escape Exit, Key-f Save SceneGraph to file, Mouse Trackball, and the text "Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)".

NPS08_TestUpdateCallback.tcl

Original C++ code by Joseph Sullivan.
See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	NPS09_TestKeyboard
Type:	NPS-Tutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Sullivan's OSG tutorial #9 (TestKeyboard)

Key-Escape Exit
 Key-Left|Right Rotate turret left|right
 Key-f Save SceneGraph to file
 Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)

NPS09_TestKeyboard.tcl

Original C++ code by Joseph Sullivan.
 See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/03/20.
 See www.tcl3d.org for the Tcl3D extension.

Demo:	NPS10_TestManualCamera
Type:	NPS-Tutorials
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: Sullivan's OSG tutorial #10 (TestManualCamera)

Key-Escape Exit
 Key-f Save SceneGraph to file
 Key-v Toggle view mode
 Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)

NPS10_TestManualCamera.tcl

Original C++ code by Joseph Sullivan.
 See <http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials> for the original files.

Modified for Tcl3D by Paul Obermeier 2009/05/01.
 See www.tcl3d.org for the Tcl3D extension.

Type:	OsgHelp
Category:	OpenSceneGraph
Root:	Contents
Some of the OpenSceneGraph tutorials from Peter Wraae Marino and Michael Bach Jensen have been ported to run with Tcl3D. Original sources available at their OsgHelp website.	
Available demos	
AntialiasedLines	Geometry
GeometryTextured	HelloWorld
Light	MultiTextures
Shapes	StatisticsDisplay
UpdateCallback	Wireframe

Demo:	AntialiasedLines
Type:	OsgHelp
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: OsgHelp tutorial AntialiasedLines

The screenshot shows a Windows application window titled "Tcl3D demo: OsgHelp tutorial AntialiasedLines". The window has a menu bar with "File", "Help", "Safe", and "Debug". Under "File", there are options for "Normal", "Safe", and "Debug". A submenu "OsgHelp" contains "Demo scripts" which include "AntialiasedLines.tcl", "Geometry.tcl", "GeometryTextured.tcl", "HelloWorld.tcl", "Shapes.tcl", "StatisticsDisplay.tcl", and "Wireframe.tcl". The main area of the window displays a wireframe trapezoid. At the bottom, there is a status bar with keyboard shortcuts: "Key-Escape Exit", "Key-f Save SceneGraph to file", and "Mouse Trackball". A note at the bottom states "Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.6b1.1)".

AntialiasedLines.tcl

Original C++ code by Peter Wraae Marino and Michael Bach Jensen.
See www.osghelp.com for the original files.

Modified for Tcl3D by Paul Obermeier 2010/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	Geometry
Type:	OsgHelp
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: OsgHelp tutorial Geometry

Geometry.tcl

Original C++ code by Peter Wraae Marino and Michael Bach Jensen.
See www.osghelp.com for the original files.

Modified for Tcl3D by Paul Obermeier 2010/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	GeometryTextured
Type:	OsgHelp
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: OsgHelp tutorial GeometryTextured

The screenshot shows a Windows application window titled "Tcl3D demo: OsgHelp tutorial GeometryTextured". The window has a menu bar with "Normal", "Safe", and "Debug" options, and a sub-menu "OsgHelp" which includes "Demo scripts" and a list of files: "Geometry.tcl", "GeometryTextured.tcl" (which is selected), "HelloWorld.tcl", "Shapes.tcl", "StatisticsDisplay.tcl", and "Wireframe.tcl". The main area displays the "OpenSceneGraph Help" logo, featuring a globe with a red roof and green base, set against a blue-to-pink gradient background. At the bottom of the window, there is a status bar with keyboard shortcuts: "Key-Escape Exit", "Key-f Save SceneGraph to file", and "Mouse Trackball". A note at the bottom states "Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.6b1.1)".

GeometryTextured.tcl

Original C++ code by Peter Wraae Marino and Michael Bach Jensen.
See www.osghelp.com for the original files.

Modified for Tcl3D by Paul Obermeier 2010/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	HelloWorld
Type:	OsgHelp
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: OsgHelp tutorial HelloWorld

Normal Safe Debug

OsgHelp

..

Demo scripts

Geometry.tcl
GeometryTextured.tcl
HelloWorld.tcl
Shapes.tcl
StatisticsDisplay.tcl
Wireframe.tcl

Hello World

Key-Escape Exit
Key-f Save SceneGraph to file
Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.6b1.1)

HelloWorld.tcl

Original C++ code by Peter Wraae Marino and Michael Bach Jensen.
See www.osghelp.com for the original files.

Modified for Tcl3D by Paul Obermeier 2010/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	Light
Type:	OsgHelp
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: OsgHelp tutorial Light

Key-Escape Exit
Key-f Save SceneGraph to file
Mouse Trackball

Light.tcl

Original C++ code by Peter Wraae Marino and Michael Bach Jensen.
See www.osghelp.com for the original files.

Modified for Tcl3D by Paul Obermeier 2010/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	MutiTextures
Type:	OsgHelp
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: OsgHelp tutorial MultiTextures

i ? E X
Normal Safe Debug
OsgHelp
..
Demo scripts
AntialiasedLines.tcl
Geometry.tcl
GeometryTextured.tcl
HelloWorld.tcl
Light.tcl
MultiTextures.tcl
Shapes.tcl
StatisticsDisplay.tcl
Wireframe.tcl

Key-Escape	Exit
Key-f	Save SceneGraph to file
Mouse	Trackball

Running on Windows NT 6.1 with a ATI Radeon HD 5800 Series (OSG 2.8.2, Tcl/Tk 8.4.18)

MultiTextures.tcl

Original C++ code by Peter Wraae Marino and Michael Bach Jensen.
See www.osghelp.com for the original files.

Modified for Tcl3D by Paul Obermeier 2010/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	Shapes
Type:	OsgHelp
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: OsgHelp tutorial Shapes

The screenshot shows a Windows application window titled "Tcl3D demo: OsgHelp tutorial Shapes". The window has a blue title bar and a dark blue background. On the left is a vertical toolbar with icons for info, help, file, and exit, followed by tabs for "Normal", "Safe", and "Debug", and a dropdown set to "OsgHelp". Below that is a "Demo scripts" list containing "Geometry.tcl", "GeometryTextured.tcl", "HelloWorld.tcl", "Shapes.tcl" (which is highlighted in blue), "StatisticsDisplay.tcl", and "Wireframe.tcl". To the right of the toolbar is a 3D rendering area showing a sphere, a cube, a cone, a cylinder, and a torus. At the bottom of the window is a menu bar with "Key-Escape Exit", "Key-f Save SceneGraph to file", and "Mouse Trackball". A status bar at the bottom right says "Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.6b1.1)".

Shapes.tcl

Original C++ code by Peter Wraae Marino and Michael Bach Jensen.
See www.osghelp.com for the original files.

Modified for Tcl3D by Paul Obermeier 2010/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	StatisticsDisplay
Type:	OsgHelp
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: OsgHelp tutorial StatisticsDisplay

Frame Rate: 92.87
ThreadingModel: SingleThreaded

Event: 0.07
Update: 0.00
Call: 0.16
Draw: 0.60

Normal Safe Debug

OsgHelp

..

Demo scripts

- Geometry.tcl
- GeometryTextured.tcl
- HelloWorld.tcl
- Shapes.tcl
- StatisticsDisplay.tcl**
- Wireframe.tcl

Camera	#0	View	#0	Unique	Instance
Lights	0	Stateset	0	0	
Bins	1	Group	0	0	
Depth	0	Transform	0	0	
Matrices	1	LOD	0	0	
Imposters	0	Switch	0	0	
Drawables	1	Geode	1	1	
Vertices	1640	Drawable	1	1	
Points		Geometry	0	0	
Lines		Vertices	1640	1640	
Line strips		Primitives	800	800	
Line loops					
Triangles					
Tri. strips					
Tri. fans					
Quads					
Quad strips					
Polygons					

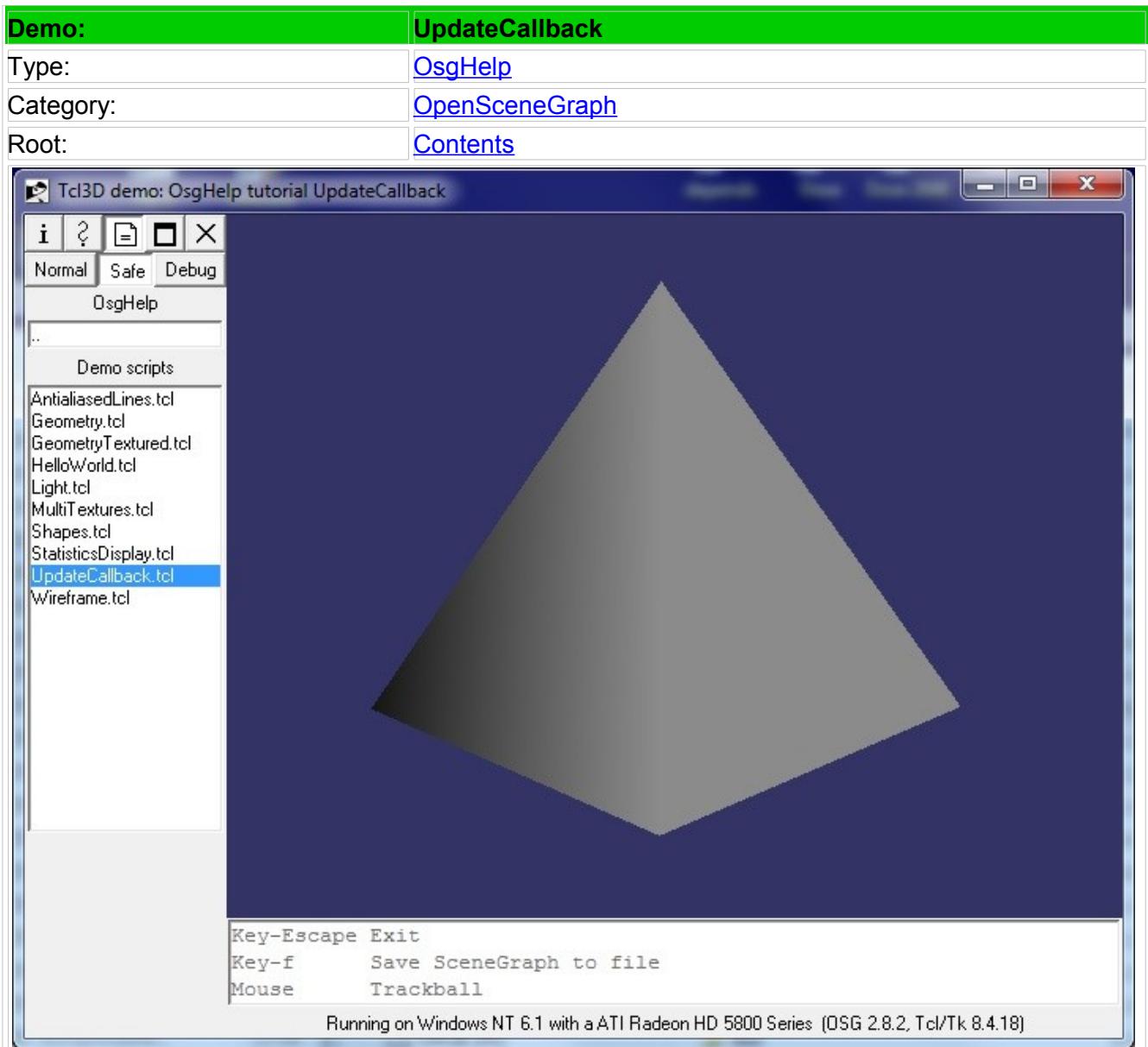
Key-Escape Exit
Key-f Save SceneGraph to file
Key-s Toggle statistics displays
Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.6b1.1)

StatisticsDisplay.tcl

Original C++ code by Peter Wraae Marino and Michael Bach Jensen.
See www.osghelp.com for the original files.

Modified for Tcl3D by Paul Obermeier 2010/03/20.
See www.tcl3d.org for the Tcl3D extension.



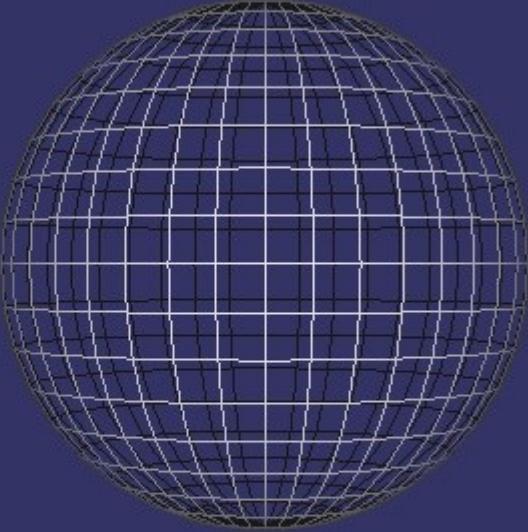
UpdateCallback.tcl

Original C++ code by Peter Wraae Marino and Michael Bach Jensen.
See www.osghelp.com for the original files.

Modified for Tcl3D by Paul Obermeier 2010/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	Wireframe
Type:	OsgHelp
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: OsgHelp tutorial Wireframe

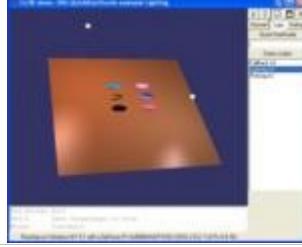


The window title is "Tcl3D demo: OsgHelp tutorial Wireframe". The menu bar includes "File" (with icons for info, help, save, and exit), "Normal", "Safe", and "Debug". A dropdown menu "OsgHelp" contains "Demo scripts" which lists "Geometry.tcl", "GeometryTextured.tcl", "HelloWorld.tcl", "Shapes.tcl", "StatisticsDisplay.tcl", and "Wireframe.tcl", with "Wireframe.tcl" being the selected item. A status bar at the bottom shows "Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.6b1.1)".

Wireframe.tcl

Original C++ code by Peter Wraae Marino and Michael Bach Jensen.
See www.osghelp.com for the original files.

Modified for Tcl3D by Paul Obermeier 2010/03/20.
See www.tcl3d.org for the Tcl3D extension.

Type:	QuickStartGuide	
Category:	OpenSceneGraph	
Root:	Contents	
Some of the OpenSceneGraph examples from Paul Martz's Quick Start Guide have been ported to run with Tcl3D.		
Book and original sources available at: http://www.skew-matrix.com/OSGQSG/		
Available demos		
		
Callback	Lighting	Picking

Demo:	Callback
Type:	QuickStartGuide
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: OSG QuickStartGuide example Callback

Key-Escape Exit
Key-f Save SceneGraph to file
Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)

OpenSceneGraph Quick Start Guide
<http://www.skew-matrix.com/OSGQSG>

Callback Example, Using an update callback to modify the scene graph

Modified for Tcl3D by Paul Obermeier 2009/10/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	Lighting
Type:	QuickStartGuide
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: OSG QuickStartGuide example Lighting

Key-Escape Exit
Key-f Save SceneGraph to file
Mouse Trackball

Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)

OpenSceneGraph Quick Start Guide
<http://www.skew-matrix.com/OSGQSG>

Lighting Example, Basic light and material control

Modified for Tcl3D by Paul Obermeier 2009/03/20.
See www.tcl3d.org for the Tcl3D extension.

Demo:	Picking
Type:	QuickStartGuide
Category:	OpenSceneGraph
Root:	Contents

Tcl3D demo: OSG QuickStartGuide example Picking

The interface includes a toolbar with icons for Info, Help, Save, and Close, and tabs for Normal, Safe, and Debug. A menu bar shows 'QuickStartGuide' and a 'Demo scripts' section containing 'Callback.tcl', 'Lighting.tcl', and 'Picking.tcl', with 'Picking.tcl' currently selected.

Key bindings shown in the bottom-left:

- Key-Escape Exit
- Key-f Save SceneGraph to file
- Mouse Trackball

Text at the bottom:

- Running on Windows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)
- OpenSceneGraph Quick Start Guide
- <http://www.skew-matrix.com/OSGQSG>
- Picking Example, Using the osgUtil Intersection classes and osgGA NodeKit
- Code derived from an OSG example. Original comment block follows.
- C++ source file - (C) 2003 Robert Osfield, released under the OSGPL.
- Simple example of use of osgViewer::GraphicsWindow + SimpleViewer that provides the user with control over view position with basic picking.
- Modified for Tcl3D by Paul Obermeier 2009/03/20.
See www.tcl3d.org for the Tcl3D extension.