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Overview		
Category	Туре	
LibrarySpecificDemos	tcl3dCg	
	tcl3dFTGL	
	tcl3dGauges	
	tcl3dOde	
	tcl3dOgl	
	tcl3dOglExt	
	tcl3dSDL	
	tcl3dTogl	
Tcl3DSpecificDemos	<u>rtVis</u>	
TutorialsAndBooks	CodeSampler	
	GameProgrammer	
	<u>NeHe</u>	
	Nopper	
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OpenSceneGraph	<u>CubosLocos</u>	
	FopingTutorials	
	NPS-Tutorials	
	<u>OsgHelp</u>	
	QuickStartGuide	

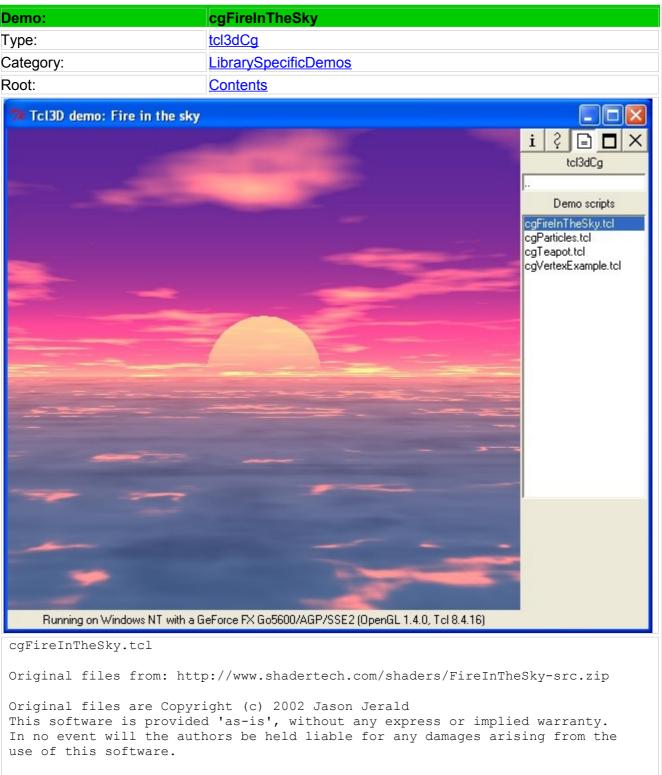
Category:	LibrarySpecificDemos
Root:	Contents
Types:	tcl3dCg tcl3dFTGL tcl3dGauges tcl3dOde tcl3dOgl tcl3dOglExt tcl3dSDL tcl3dTogl

Туре:	tcl3dCg		
Category:	LibrarySpecificDemos		
Root:	Contents		
Tcl3D. The examples co	g demo applications fro over vertex and fragment a ifferent sites. See the doct	shader programming in	-
	Available	demos	
<u>QJuliaGPU</u>	<u>cgFireInTheSky</u>	<u>cgParticles</u>	<u>cgTeapot</u>
cgVertexExample			

Demo:	QJuliaGPU			
Туре:	tcl3dCg			
Category:	LibrarySpecificDemos			
Root:	<u>Contents</u>			
💢 TcI3D demo: Keenan Crane's Quater	nion Julia Sets 🍥			
		Commands — — – Commands – – – – – – – – – – – – – – – – – – –		i? 🗖 🗖 🗙
		Shadows (s)		Normal Safe Debug tcl3dCg
		Julia settings		
		Iterations (-/+): 6		Demo scripts
		Precision (b/n): 0. Real (I/L): 0.	05 1	QJuliaGPU.tcl
			and the second se	cgFireInTheSky.tcl cgParticles.tcl
			0.49 🗘	cgTeapot.tcl
		lm 3 (k/K): 0	.50 🗐	cgVertexExample.tcl
Using Cg version 2.2.0006 (24 fps Running on Linux with a GeForce 8600		2 NVIDIA 173.14.12	2, Tcl 8.4.14)	
QJuliaGPU Keenan Crane 4/17/2004	e (kcrane@uiuc.edu)			
This program ray traces t using the sphere tracing where each fragment of the are passed to the fragment steps along a ray as deter rays will either stop whe function (considered a his set. If the ray is a hit gradient of the distance	method. The progra a quad specifies a at shader which ite ermined by a distan- en close to an isos at), or leave the be a, shading is performed	am draws a fu different ra ratively take ce estimator urface of the punding spher rmed by appro	allscreen ay. These es conser- for the distance re of the oximating	quad e rays vative set. The e Julia the
A more complete descripti John Hart's paper, "Ray T (http://graphics.cs.uiuc.	racing Determinist	ic 3-D Fracta		found in
Controls:				
m: s: r:	rotate view zoom in/out translate view toggle morph animat toggle shadows on/o reload shaders from	off n disk		
i/I: constant	increment/decremen	L ISL IMAGIN	агу сотро	ment of Juila set
j/J:	increment/decremen	t 2nd imagin	ary compo	nent of Julia set
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constant	
k/K:	increment/decrement 3rd imaginary component of Julia set
constant	
1/L:	increment/decrement real component of Julia set constant
-/+:	change number of iterations used to test convergence of
a point	
b/n:	change precision of rendering
Julia set withi or the precisio rendering. The included in the distance functi	program will shift through a random constants for the n the cube [-1,1]^4. Increasing the number of iterations on will increase the amount of detail seen in the former more accurately determines whether a point is set, whereas the latter intersects an isosurface of the on closer to the actual set. Both of these parameters run or computation limits when set too high.
	d Cg code by Keenan Crane (kcrane@uiuc.edu) cs.caltech.edu/~keenan/project_qjulia.html for the original files.
Modified for Tc	13D by Paul Obermeier 2009/08/29
	rg for the Tcl3D extension.
	-



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

Demo:	cgParticles	
Туре:	tcl3dCg	
Category:	LibrarySpecificDemos	
Root:	Contents	
7 Tcl3D demo: Particles with (Cg	
		i ? tcl3dCg . Demo scripts cgFireInTheSky.tcl cgParticles.tcl cgTeapot.tcl cgVertexExample.tcl
Running on Windows NT with a G	ieForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16)	
cgParticles.tcl		
Particle Effects using C	G and OpenGL	
Original files from: htt	p://www.shadertech.com/shaders/ParticleS	ystem-src.zip
This software is provide	ight (c) 20002 Arkadiusz Waliszewski d 'as-is', without any express or implie hors be held liable for any damages aris	-
	anyone to use this software for any pur lications, and to alter it and redistrib ollowing restrictions:	
you must not claim that If you use this software	ftware must not be misrepresented; you wrote the original software. in a product, an acknowledgment tion would be appreciated but is not req	uired.
	ns must be plainly marked as such, sented as being the original software.	

3. This notice may not be removed or altered from any source distribution.

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

Demo:	cgTeapot
Туре:	tcl3dCg
Category:	LibrarySpecificDemos
Root:	<u>Contents</u>
Tcl3D demo: Teapot with Cg	EFORCE FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16)
	o://developer.nvidia.com/Cg
	ed interfaces_ogl as included in the Cg Toolkit.
Modified for Tcl3D by Pau See www.tcl3d.org for the	

Demo:	cgVertexExample
Туре:	tcl3dCg
Category:	LibrarySpecificDemos
Root:	<u>Contents</u>
7 Tcl3D demo: Simp	e Cg vertex shader i ? . LeiddCg Demo scripts cgFireInTheSky.tel cgParticles.tel cgVertexExample.tel CgVertexExample.tel
-	NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16)
This is the examp Modified for Tcl3	cl om: http://developer.nvidia.com/Cg le called runtime_ogl as included in the Cg Toolkit. D by Paul Obermeier 2005/11/07 for the Tcl3D extension.

Туре:	tcl3dFTGL
Category:	LibrarySpecificDemos
Root:	Contents
This section contains <u>FTGL</u> demo applications written in Tcl3D. The examples cover the demo applications distributed with FTGL.	
Availab	e demos
ftglDemo	ftglTest



Demo:	ftglTest	
Туре:	tcl3dFTGL	
Category:	LibrarySpecificDemos	
Root:	Contents	
Tcl3D demo: FTGL using Tru	eType file Vera.ttf	
064-095: @ABCDEFG	^s +,/0123456789:;<=>? HIJKLMNOPQRSTUVWXYZ[\]^_ klmnopqrstuvwxyz{ }~[] racte r s	i ? E X tcl3dFTGL Demo scripts ftgIDemo.tcl ftgIT est.tcl
	PIXMAP C OUTLINE C POLYGON C EXTRUDE FEX	T
Running on Windows NT with	a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0)	
ftglTest.tcl		
C++ source changed by mr original source: henryj@		
Modified for Tcl3D by Pa See www.tcl3d.org for th		
A test program showing t	ne 5 different font rendering types.	

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

Demo:	gaugedemo
Туре:	tcl3dGauges
Category:	LibrarySpecificDemos
Root:	<u>Contents</u>
Tc13D demo: Fly around with	n gauges (318 fps)
	ALTIMETER ALTIMETER 01650 0
Copyright:	2005-2010 Paul Obermeier (obermeier@tcl3d.org)
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Module: Filename:	Tcl3D -> tcl3dGauges gaugedemo.tcl
Author:	Paul Obermeier
Description:	Demo program showing the use of the Tcl3D extension package gauge.

Demo:	ga	ugetest	
Туре:	tcl	<u>3dGauges</u>	
Category:	Lib	orarySpecificDemos	
Root:	Co	ontents	
🧳 Tcl3D demo: Gau	ige test		
C airspeed	C altimeter	C compass	 tiltmeter
-60.0	TIUMETER VISTORIA 39.8	rs8.5	TILTMETER VEB 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Test	Test		
		IT with a GeForce FX Go5600/AGP/SSE	
Copyright:	See the fil and redistr DISCLAIMER	ibution of this file, a OF ALL WARRANTIES.	or information on usage
Module: Filename:	Tcl3D -> tc gaugetest.t	-	
Author:	Paul Oberme	ier	
Description:		m for the Tcl3D extensi allows to show the 4 g	on package gauge. auges at different sizes.

Туре:	tcl3dOde
Category:	LibrarySpecificDemos
Root:	Contents
This section contains <u>ODE</u> demo applications written in Tcl3D. The examples cover some demonstrations distributed with PyOde.	
Availabl	e demos
Available demos	
odeGravity	odeJoints

Demo:	odeGravity	
Туре:	tcl3dOde	
Category:	LibrarySpecificDemos	
Root:	<u>Contents</u>	
	DE): Bodies with gravity	i ? i X tcl3d0de Demo scripts odeJoints.tcl
	Running on Windows NT with Tcl 8.4.13	
Copyright:	2006-2010 Paul Obermeier (obermeier@tcl3d.org)	
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Module: Filename:	Tcl3D -> tcl3dOde odeGravity.tcl	
Author:	Paul Obermeier	
Description:	Tcl3D Ode example: Bodies influenced by gravit Based on PyODE Tutorial 1 By Matthias Baas.	У•

Demo:	odeJoints	
Туре:	tcl3dOde	
Category:	LibrarySpecificDemos	
Root:	Contents	
	E): Connected bodies with joints	i ? I X K
	Time: 4.9 sec (Frame 244)	
	Running on Windows NT with Tcl 8.4.13	
Copyright:	2006-2010 Paul Obermeier (obermeier@tcl3d.org	3)
	See the file "Tcl3D_License.txt" for informat usage and redistribution of this file, and fo DISCLAIMER OF ALL WARRANTIES.	
Module: Filename:	Tcl3D -> tcl3d0de odeJoints.tcl	
Author:	Paul Obermeier	
Description:	Tcl3D Ode example: Connected bodies with joir Based on PyODE Tutorial 2 By Matthias Baas.	nts

Туре:	tcl3dOgl		
	LibrarySpecificDemos		
	Contents		
This section contains <u>OpenGL</u> 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	e demos	
GearTrain	<u>ModelViewMatrix</u>	<u>Sierpinski</u>	animlogo
atlantis	drawReadPixels	gluCylinder	<u>glutShapes</u>
imgproc	molecules	<u>multiview</u>	<u>platonic</u>
	Considerational formational and the second s		
<u>spheres</u>	tcl3dChaos	texanim	<u>texgen</u>
trislam			

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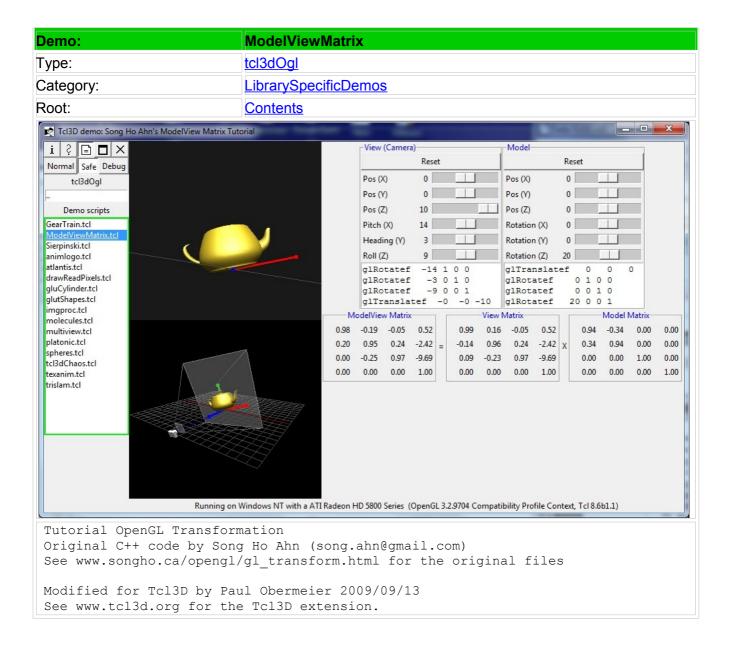
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Slightly modified for Tcl3D presentation by Paul Obermeier 2006/08/02 See www.tcl3d.org for the Tcl3D extension.



Demo:	Sierpinski
Туре:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents
	erpinski Tetrahedron i ?
	■ Build View distance Animate 4096 triangles: 46 msec to build
	lows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
Copyright:	2005-2010 Paul Obermeier (obermeier@tcl3d.org) See the file "Tcl3D_License.txt" for information on usage and redistribution of this file, and for a DISCLAIMER OF ALL WARRANTIES.
Module: Filename:	Tcl3D -> tcl3d0gl 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.

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Demo:	animlogo
Туре:	tcl3dOgl
Category:	LibrarySpecificDemos
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Running on Windows NT with a Get	L Logo i ? i ? i x tcl3d0g Demo scripts GearTrain.tcl Sierpinski.tcl arimlogo.tcl atlantis.tcl gluCylinder.tcl multiview.tcl spheres.tcl
animlogo.tcl	
The animated OpenGL logo	
This file is part of the (c) Henk Kok (kok@wins.uv	
	etc is permitted as long as this copyright able names :) stay in tact.
Original sources availabl http://www.opengl.org/res	e at: sources/code/samples/glut_examples/demos/demos.html
Modified for Tcl3D by Pau See www.tcl3d.org for the	

Demo:	atlantis	
Туре:	tcl3dOgl	
Category:	LibrarySpecificDemos	
Root:	Contents	
Tcl3D demo: Atlantis		
		i ? tcl3d0gl Demo scripts GearT rain.tcl Sierpinski.tcl animlogo.tcl atlantis.tcl gluCylinder glutShapes multiview.ti spheres.tcl Quit progra
Mouse-3 PopupMenu Key-s Stop Key-p Play Key-Space Step Key-Escape Exit		
	vith a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)	
atlantis.tcl Copyright (c) Mark J. Kilgard, 1994. */ (c) Copyright 1993, 1994, Silicon Graphics, Inc. ALL RIGHTS RESERVED Permission to use, copy, modify, and distribute this software for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies and that both the copyright notice and this permission notice appear in supporting documentation, and that the name of Silicon Graphics, Inc. not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission.		
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OpenGL(TM) is a trademark of Silicon Graphics, Inc.

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
Туре:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	<u>Contents</u>
Draw/Read of 1 pixel: 0.0 Saving image to GL_RGBA-2	i ? ⊡ × Normal Safe Debug tel3d0gl Demo scripts GearTrain.tcl Sierpinski.tcl animlogo.tcl atlantis.tcl dfawFeadPixels.tcl gluCylinder.tcl gluCylinder.tcl glutShapes.tcl imgproc.tcl multiview.tcl platonic.tcl spheres.tcl tcl3dChaos.tcl texanim.tcl trislam.tcl trislam.tcl trislam.tcl trislam.tcl
Tolan demo testing the er	eed of the glDrawPixels and glReadPixels functions.
	olor gradient image of a specified size.

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
Туре:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents
Key-Escape Ex	Lylinder with gluQuadric i ? i ? Demo scripts GearTrain.tcl Sierpinski.tcl animlogo.tcl atlantis.tcl gluShapes.tcl multiview.tcl spheres.tcl 1t ndows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13) 2005-2010 Paul Obermeier (obermeier@tcl3d.org)
	See the file "Tcl3D_License.txt" for information on usage and redistribution of this file, and for a DISCLAIMER OF ALL WARRANTIES.
Module: Filename:	Tcl3D -> tcl3dOgl gluCylinder.tcl
Author:	Paul Obermeier
Description:	Tcl3D demo showing the use of gluQuadric routines to draw a cylinder.

Demo:	glutShapes
Туре:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents
Tel3D domo: On	
Key-Escape	enGL GLUT shapes
Key-r Key-Up Down	Reset rotation Decrease Increase x rotation speed
	Decrease Increase y rotation speed
P	ows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
Copyright:	2006-2010 Paul Obermeier (obermeier@tcl3d.org)
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Module: Filename:	Tcl3D -> tcl3d0gl glutShapes.tcl
Author: Date:	Paul Obermeier 2006-12-01
Description:	Tcl3D demo showing all supported GLUT shapes.

Demo:	imgproc
Туре:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents
Root:	
C Brighten 📀 Saturate C Sharp	en 🔿 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 Bly	The, SGI
accumulation buffer oper	ge processing operations coded as OpenGL cations. This allows extremely fast nines with hardware accumulation buffers eReality, VGX).
This demo is part of the	e advanced glut demos. See
	sources/code/samples/glut_examples/advanced/advanced.html
Modified for Tcl3D by Pa See www.tcl3d.org for th	

Demo:	molecule	S			
Туре:	tcl3dOgl				
Category:	LibrarySp	LibrarySpecificDemos			
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78 Icl3D demo:	Molecule viewer (4HHB.pd	ID)			
			Atom List	i?⊒□×	
		NA : NB :	4	Normal Safe Debug	
		NC :	4	tcl3d0gl	
1.10		ND :	4	ļ	
10 10 10			38	Demo scripts	
		ND2 : NE :	20	GearTrain.tcl ModeWiewMatrix.tcl	
	12 C 1 C 1 C 1 C 1 C 1 C 1 C 1 C 1 C 1 C	NE1 :	6	Sierpinski.tcl	
	7 7 7 6 6 6	NE2 :	46	animlogo.tcl atlantis.tcl	
	10 - 10 - 20		12	drawReadPixels.tcl	
		NH2 : NZ :	12 44	gluCylinder.tcl glutShapes.tcl	
			95	imgproc.tcl	
	17 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -	OIA :	4	molecules.tcl multiview.tcl	
	Jack Street Street	01D :	4	platonic.tcl	
		OZA :	4	spheres.tcl tcl3dChaos.tcl	
		0)pen PDB	texanim.tcl	
			Animate	trislam.tcl	
-Modelling options-		Display option			
	ces per sphere: 15		-		
Number of sta Atom radius s	acks per sphere: 10	/ 프 Use line 80 뤽 프 Shawai	mode		
Line width of		이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이	toms		
Number of at		Show or	onnects		
Number of co					
Running on W	indows NT with a GeForce FX Go	5600/AGP/SSE2 (OpenGL	1.4.0, Tcl 8.4.16)	1	
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Module: Filename:	Tcl3D -> tcl3dOgl molecules.tcl				
Author:	Paul Obermeier				
Description:	Tcl3D demo displayi	ng molecules as	colored spheres	5.	
	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 a molecule viewer Qut			_	
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Demo:	multivie	w	
Туре:	tcl3dOgl		
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🚺 Tcl3D demo: Multi	ple viewports		
			i ? i X tcl3d0gl Demo scripts GearTrain.tcl Sierpinski.tcl animlogo.tcl atlantis.tcl gluCylinder.tcl gluCylinder.tcl glutShapes.tcl multiview.tcl spheres.tcl
o	rtho view along Y	Ortho view along X	
Key-Escape Exit Running on Windows		Oftho view along Z	
S	ee the file "Tc	bermeier (obermeier@tcl3d.org) l3D_License.txt" for informatic ribution of this file, and for L WARRANTIES.	
Filename: m	cl3D -> tcl3d0g ultiview.tcl	1	
Author: P	aul Obermeier		
		ng the famous teapot in 4 diffe ingle togl widget.	erent

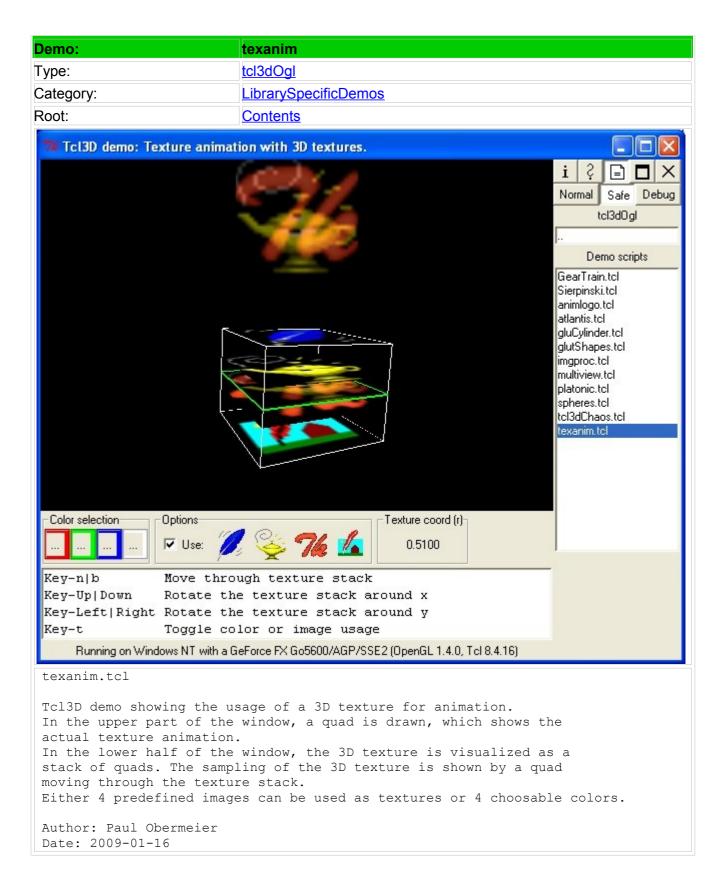
Demo:	platonic			
Туре:	tcl3dOgl			
Category:	LibrarySpecificDemos			
Root:	Contents			
Key-Escape Mouse-L MR	: The six platonic solids	i ? Demo scripts Composition Co		
Key-m Key-p	Toggle mirror Toggle teapotahedron			
Key-t	Toggle textures			
Key-O	Toggle light O			
Key-1	Toggle light 1			
Key-+ - Bunning on	Increment Decrement camera speed Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16)			
<pre>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.</pre>				
Author:	nor: Gustav Taxen, nv91-gta@nada.kth.se			
Notes:	The code is not very pretty, nor is it optimized wr Should add shadows as well, but I'll save that for version			
	C) 1998 Gustav Taxen. e software with ABSOLUTELY NO WARRANTY.			
it under the the Free So:	n is free software; you can redistribute it and/or mo e terms of the GNU General Public License as publishe Stware Foundation; either version 2 of the License, o cion) any later version.	ed by		
Tcl3D demos	at a glance Version 0.5.0, December 2010 P	age 35 of 266		

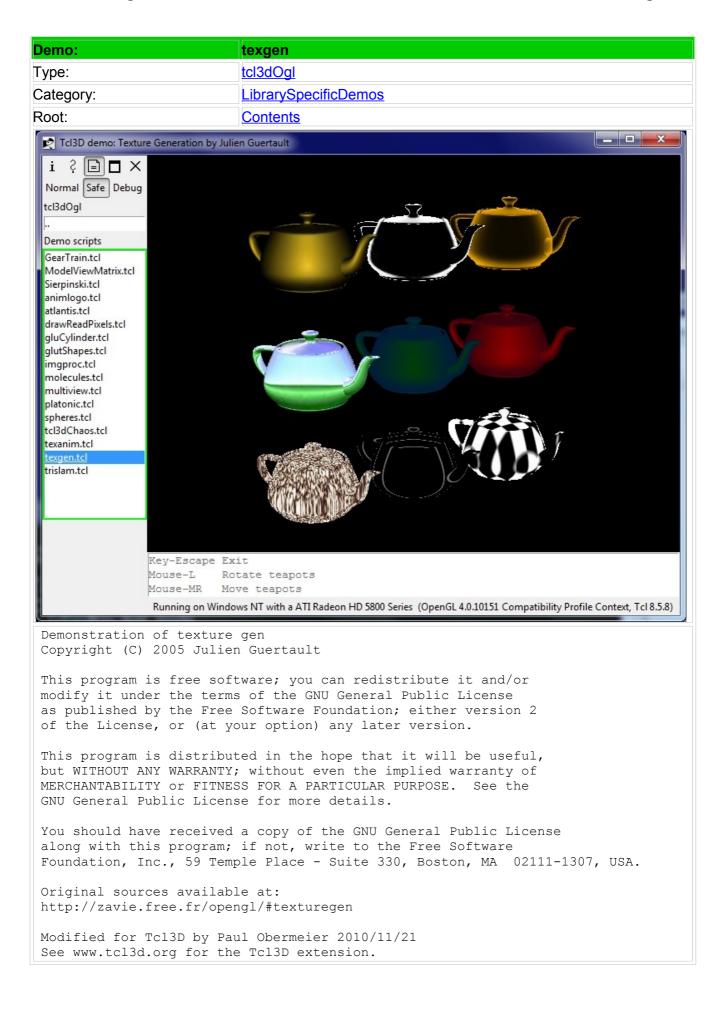
Copyright © 2005-2010 by Paul Obermeier. All rights reserved.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details. You should have received a copy of the GNU General Public License along with this program. If not, write to the Free Software Foundation, 675 Mass Ave, Cambridge, MA 02139, USA. 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:	sphe	eres		
Туре:	tcl3d	<u>Ogl</u>		
Category:	Libra	<u>rySpecificDem</u>	<u>IOS</u>	
Root:	Conte	<u>ents</u>		
🚺 Tcl3D demo: Mo	lecules benchmark	c (182 fps)		
				tcl3dOgl
		88a -		
				Demo scripts
				GearTrain.tcl Sierpinski.tcl
				animlogo.tcl atlantis.tcl
				gluCylinder.tcl
	The second second			glutShapes.tcl multiview.tcl
	- ha			spheres.tcl
	- A			
		.		
Number of diams and only		K translate:	0.0	
Number of slices per sph	ere: 15 🖃			
Number of stacks per spl	here: 15 🚊 🛛 Y	rtranslate:	0.0	
Number of spheres per si	ide: 7 🖻			
	Z	Z translate:	11.0	
Number of spheres: 343	(77175 polygons)			
🔽 Use display list 🔲	Use flat shading 🔲 Us	se line mode Anim	ate Save as PDF	
Running on Wind	ows NT with a GeForce	FX Go5600/AGP/9	SE2 (OpenGL 1.4.0, Tcl 8.4.13)	
Copyright:	2005-2010 Pau	l Obermeier	(obermeier@tcl3d.or	g)
		istribution	nse.txt" for informa of this file, and f 'IES.	
Madula				
Module: Filename:	Tcl3D -> tcl30 spheres.tcl	augi		
Author:	Paul Obermeie	r		
Description:	Tcl3D demo di	splaying spł	eres in various mod	es.

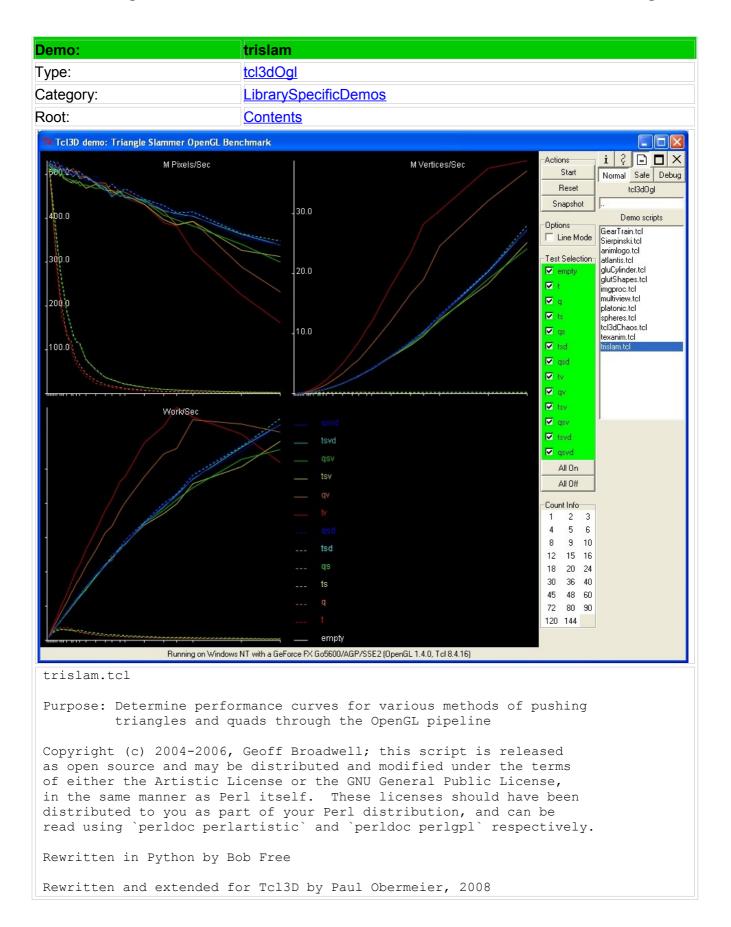
Demo:	tcl3dChaos
Туре:	tcl3dOgl
Category:	LibrarySpecificDemos
Root:	Contents
🛃 Tcl3D demo: Sin	nple Chaos Theory
Revert V ScanM	i ?
	os Time for 36851 pixels: 9.0 seconds
	ows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.16)
Copyright:	2007-2010 Paul Obermeier (obermeier@tcl3d.org)
	See the file "Tcl3D_License.txt" for information on usage and redistribution of this file, and for a DISCLAIMER OF ALL WARRANTIES.
Module: Filename:	Tcl3D -> tcl3dOgl tcl3dChaos.tcl
Author:	Paul Obermeier
Description:	<pre>Implementation of algorithmn 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</pre>





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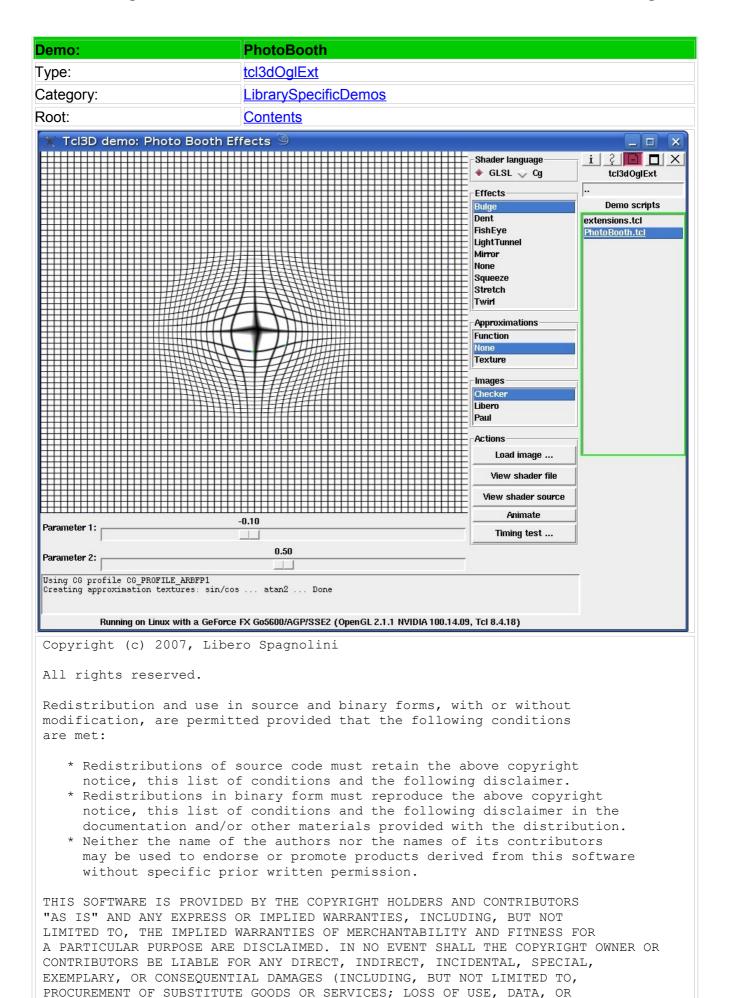


Туре:	tcl3dOglExt				
Category:	LibrarySpecificDemos	LibrarySpecificDemos			
Root:	Contents	Contents			
This section contains <u>OpenGL</u> demo applications from several resources, that have been ported to Tcl3D. The examples cover OpenGL extension programming. Original sources from different sites.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

Tcl3D: Doing 3D with Tcl

to De extensio OglBend	Image: Constraint of the second se
Root: Contents Contents Tcl3D demo: Bob Free's OpenGL Benchmark - Tcl Binding i Normal tc De extensiti OglBend	?
Tcl3D demo: Bob Free's OpenGL Benchmark - Tcl Binding i ? Normal tc De extensit OglBend	?
i ? Normal to De extensio OglBend	?
Key-Escape Exit Key-Escape Exit Key-F6 Start benchmark Key-Space Stop running benchmark Mouse-1 Rotate teapot Mouse-2 Rotate teapots Bunning on Linux with a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18) ogl bench v1.0 - Copyright 2007 - Graphcomp	

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Tcl3D demos at a glance

PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. 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://dem.ocracy.org/libero/photobooth/

Demo:	extensions
Туре:	tcl3dOglExt
Category:	LibrarySpecificDemos
Root:	Contents
💥 Tcl3D demo: Extensions (56	3 fps) 🥝 📃 🗖 🗶
Running on Linux with a GeForce	<pre>i ? i ? i ? i i ? i ? i i ? i ? i i ? i i ?</pre>
extensions.tcl	
Program to demonstrate th Extensions used: GL_ARB_multitexture GL_EXT_point_parameter: GL_ARB_texture_compress GL_EXT_texture_edge_cla	s sion
	e Astle 2/1/2002 inal files from: Ference/programming/features/oglext/demo.zip
Modified for Tcl3D by Par See www.tcl3d.org for the	11 Obermeier 2005/09/05

Demo:	mandelbrot		
Туре:	tcl3dOglExt		
Category:	LibrarySpecificDemos		
Root:	<u>Contents</u>		
💢 Tcl3D demo: Mandelbrot 🔇	9		
		Texture siz	e: 512 —
		Iterations:	100 🚖
and the second		Center Re:	-0.6
and the second		Center Im:	0.0
	a da se	Box size:	3.0
and the second		-Render Meth	and the second
		♦ Tcl ♦ C Coloring Mat	
		-Coloring Met	
Sec. Sec.		-Renorm Opti	
	V Alexandre	Colors:	
		Band frequer	ncy: 0.020 🚔
and the second second	A Second Second	Save	e as image
and the second second			
2008 B			
	and the second second second		
	a da antiga da antig		
and the second second second			
1. Sec.			
Mouse-L Zoom in			
Mouse-R Step back			
Running on Linux with a GeFor	ce 8600 GTS/PCI/SSE2/3DNOW! (OpenGL 2.1.1 h	IVIDIA 100.14.1	1, 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 http://zach.in.tu-claust	found at: hal.de/teaching/cg2_08/downloads/	simple_gls	l_demos.tar.gz
Modified and extended fo See www.tcl3d.org for th	r Tcl3D by Paul Obermeier 2009/01 e Tcl3D extension.	/04	

Туре:	tcl3dSDL
Category:	LibrarySpecificDemos
Root:	Contents
This section contains <u>SDL</u> demo application CD programming with the help of the SDL 1	s written in Tcl3D. The examples cover joystick and ibrary.
Ava	ilable demos
Control C	A seven 1 (represent torong) S and and Contract Seven (S and Seven) Contract Seven (S and Sev
<u>cdplayer</u>	joysticktest

Demo:	cdplayer	
Туре:	tcl3dSDL	
Category:	LibrarySpecificDemos	
Root:	<u>Contents</u>	
🧳 Tc	13D demo: A simple CD player	
	Drive list	
	tracks 🧖	
	AYEMPTY I I I I I I I I I I I I I I I I I I I	
J:\ TR/	AYEMPTY	
<		
	Track list	
	JDIO_TRACK 06:40 JDIO_TRACK 04:08	
	JDIO TRACK 08:27	
05: AUDIO_TRACK 04:31		
	JDIO_TRACK 04:25	
	JDIO_TRACK 06:50	
	JDIO_TRACK 03:18 JDIO_TRACK 03:51	
	JDIO_TRACK 04:03	
<		
] 🕞 📥 01:09 PLAYING	
Copyright: 2006	-2010 Paul Obermeier (obermeier@tcl3d.org)	
See	the file "Tcl3D License.txt" for information on	
	e and redistribution of this file, and for a	
DISC	LAIMER OF ALL WARRANTIES.	
Module: Tcl3	D -> tcl3dSDL	
	ayer.tcl	
Author: Paul	Obermeier	
	script implementing a simple CD player to test the related functions (SDL CD*) of the Tcl3D SDL wrapping.	

Demo:	joysticktest
Туре:	tcl3dSDL
Category:	LibrarySpecificDemos
Root:	<u>Contents</u>
Ø Joystick 1 (TWI)	N SHOCK JOYPAD)
Axes 0 and	d 1 Axes 2 and 3 Hat 0
	🗸 Tcl3D demo: Jockstick test 📃 🗖 🔀
	WingMan Precision USB TWIN SHOCK JOYPAD
	4 axes 1 hats 0 balls 12 buttons
	Test Quit
	B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12
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	See the file "Tcl3D_License.txt" for information on usage and redistribution of this file, and for a DISCLAIMER OF ALL WARRANTIES.
Module: Filename:	Tcl3D -> tcl3dSDL joysticktest.tcl
Author:	Paul Obermeier
Description:	Tcl script to test the joystick related functions of the Tcl3D SDL wrapping.

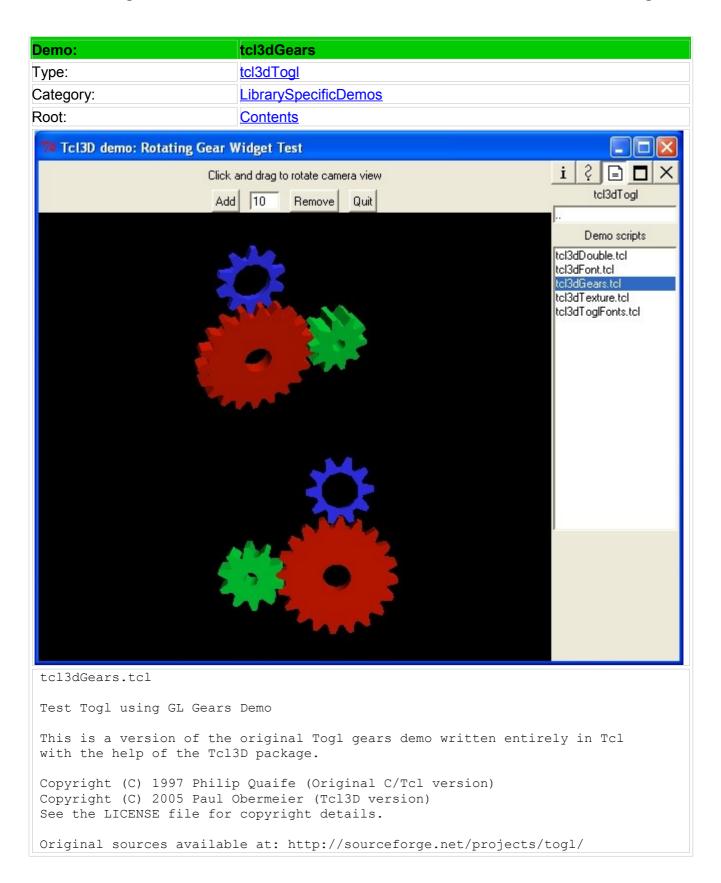
Туре:	tcl3dTogl
Category:	LibrarySpecificDemos
Root:	<u>Contents</u>
	om the <u>Togl</u> distribution have been ported to Tcl3D.
Original sources availab	le at: <u>http://sourceforge.net/projects/togl/</u>
	Available demos
tcl3dDouble	tcl3dFont tcl3dGears tcl3dTexture
Control of points in the design of points Control o	
tcl3dToglFonts	

Demo:	tcl3dDouble	
Туре:	tcl3dTogl	
Category:	LibrarySpecificDemos	
Root:	Contents	
Tcl3D demo: Single vs Doub	le Buffering	i ? i X tcl3dTogl Demo scripts tcl3dDouble.tcl tcl3dGears.tcl tcl3dGears.tcl tcl3dT exture.tcl tcl3dT oglFonts.tcl
Single buffered X Axis Y Axis	Double buffered	
T AXIS 13	0	
	Quit	
tcl3dDouble.tcl		
other double buffered. This is a version of the	two windows, one single buffered and th original Togl double demo written entir	
Copyright (C) 2005 Paul See the LICENSE file for	Paul and Ben Bederson (Original C/Tcl v Obermeier (Tcl3D version)	

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Demo: tcl3dTexture				
Type: tcl3dTogl				
Category: LibrarySpecifi		icDemos		
Root: <u>Contents</u>				
🎏 Tcl3D demo: Textu	re Map Options			
		Magnification Filter GL_NEAREST GL_LINEAR Minification Filter GL_NEAREST GL_LINEAR GL_LINEAR_MIPMAP_NEAREST GL_NEAREST_MIPMAP_LINEAR GL_LINEAR_MIPMAP_LINEAR	i ? tcl3dTogl Demo scripts tcl3dDouble.tcl tcl3dGears.tcl tcl3dGears.tcl tcl3dT exture.tcl tcl3dT oglFonts.tcl	
Max Texture Coord 1.0 GL_TEXTURE_WRAP_S GL_REPEAT GL_CLAMP GL_TEXTURE_WRAP_T GL_REPEAT GL_CLAMP	Texture Image Checker Tree Face GL_TEXTURE_ENV_MODE GL_MODULATE GL_DECAL GL_BLEND	Polygon color Red 255 Green 255 Blue 255		
	Quit			
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				
Туре:	tcl3dTogl				
Category:	Category: LibrarySpecificDemos				
Root:	oot: <u>Contents</u>				
7 Tcl3D demo: T	gl bitmap font specification examples				
loadbitmapfont	loadbitmapfont				
loadbitmapfont	-family courier		tcl3dTogl		
loadbitmapfont -family	times		 Dene seriete		
loadbitmapfont -fam	ly fixed -size 12 -weight medium -slant regula	ir -	Demo scripts tcl3dDouble.tcl		
loadbitmapfont -fan	ily fixed -size 12 -weight bold -slant italic		tel3dFont.tel tel3dGears.tel		
loadbitmapfont -slar	t xyz		tcl3dTexture.tcl		
loadbitmapfont -wei	ht xyz		tcl3dToglFonts.tcl		
loadbitmapfo	nt -size 20				
· · · · · · · · · · · · · · · · · · ·	ont -size 20 -weight bold				
 State of the state of the state	nt -size 20 -slant italic				
loadbitmapf	ontcourier-bold-r	-10-*-*-*-*-*			
loadbitmapfont -fam	ly 8x13				
loadbitmapfont 8x13	loadbitmapfont 8x1 3				
loadbitmapfont -family a-b					
loadbitmapfont a-b					
loadbitmapfont -fam	y.				
loadbitmapfont -fam	ly -weight -slant (Could not allocate font "-wei	ghť')			
loadbitmapfont -unk	ownoption (Could not allocate font "-unknow	noption")			
Key-Escape Exi	t				
Running on Win	lows NT with a GeForce FX Go5600/AGP/SSE2 (C	penGL 1.4.0, Tcl 8.4.16)			
Copyright:	2006-2010 Paul Obermeier (obe	rmeier@tcl3d.org)			
	See the file "Tcl3D_License.t usage and redistribution of t DISCLAIMER OF ALL WARRANTIES.	his file, and for a			
Module: Filename:	Tcl3D -> tcl3dTogl tcl3dToglFonts.tcl				
Author: Paul Obermeier					
Description:	Program demonstrating and tes possibilities of specifing a Togl widget.				

Tcl3D: Doing 3D with Tcl

Category:	Tcl3DSpecificDemos
Root:	<u>Contents</u>
Types:	<u>rtVis</u>

Туре:	rtVis
Category:	Tcl3DSpecificDemos
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Available demos	
rtVis	

Demo:	rtVis	
Туре:	<u>rtVis</u>	
Category:	Tcl3DSpecificDemos	
Root:	<u>Contents</u>	
TcI3D demo: 1	Ray-Tracing visualization Image: Construction Image: Constru	
Copyright:	2008-2010 Paul Obermeier (obermeier@tcl3d.org)	
	See the file "Tcl3D_License.txt" for information on usage and redistribution of this file, and for a DISCLAIMER OF ALL WARRANTIES.	
Module: Filename:	Tcl3DSpecificDemos 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.	

Demo:	bytearray		
Туре:			
Category:	Tcl3DSpecificDemos		
Root:	Contents		
Key-1: Gradient w	tures from byte arrays (Test 5)	slow)	i ? I X Tcl3DSpecificDemos Demo scripts bytearray.tcl checkerBoard.tcl imgViewer.tcl tcl3dInfo.tcl tcgIInCanvas.tcl vectormanip.tcl
Key-4: Gradient w Key-5: Color grad	ith tcl3dVectorFromByteArray (ith tcl3dVectorFromByteArray (ient with tcl3dVectorFromByteA eadback with tcl3dVectorToByte	fastest) Tray	
	27502 microseconds per iteration		
	a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0), Tcl 8.4.13)	
introduced in Version	use of the tcl3dByteArray2Vec).3. os an image generated with Tcl		

Demo:	checkerBoard	
Туре:		
Category:	Tcl3DSpecificDemos	
Root:	Contents	
Root:		i ? i k k k k k k k k k k k k k k k k k
	roseconds per iteration econds per iteration Force FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)	
The first texture is creat RedBook examples (ex. chec from C to Tcl. Very slow.	eckerboard image in two ways. ted with an algorithm, as used in some cker.tcl). This algorithm has been conv ed using the Img extension, which is es	erted 1:1

Author: Paul Obermeier Date: 2006-09-22

Demo:	imgViewer		
Туре:			
Category: <u>Tcl3DSpecificDemos</u>			
Root:	<u>Contents</u>		
74 Tcl3D Image View	wer (poSpdTeapot.tga)		
File Help			
ළේ 🔛 100	× 🗖 🗐 Ş i		
	Tcl3DSpecificDemos Demo scripts bytearray.tcl checkerBoard.tcl imgViewer.tcl rtVis.tcl tcl3Dlf.anvas.tcl vectormanip.tcl		
Width x Height: 508 x 42			
Copyright:	2005-2010 Paul Obermeier (obermeier@tcl3d.org)		
	See the file "Tcl3D_License.txt" for information on usage and redistribution of this file, and for a DISCLAIMER OF ALL WARRANTIES.		
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		
Туре:			
Category:	Tcl3DSpecificDemos		
Root:	<u>Contents</u>		
Tcl3D Model Vie			
File Edit View Help	i ? Demo scripts Demo scripts Dytearray.tcl checker@oard.tcl glu/Shapes.tcl img/iewer.tcl tcl3dInfo.tcl3d		
Copyright:	2005-2010 Paul Obermeier (obermeier@tcl3d.org) See the file "Tcl3D License.txt" for information on		
	usage and redistribution of this file, and for a DISCLAIMER OF ALL WARRANTIES.		
Module: Filename:	Tcl3D modelViewer.tcl		
Author:	Paul Obermeier		
Description: Tcl program to display 3D model files in all formats supported by the Tcl3D extension.			

Type: Category: Tcl3DSpecificDemos Root: Contents Tel3D demo: OpenCL execution modes			
Root: <u>Contents</u>			
Tal2D demo: OpenCl execution moder			
🎏 Tcl3D demo: OpenGL execution modes 📃 🔲	X		
T cl3D SpecificDem Demo scripts bytearray.tcl checkerBoard.tcl imgViewer.tcl modelViewer.tcl ogImodes.tcl rtVis.tcl tcl3dInfo.tcl tcl3dInfo.tcl tcl3dInfo.tcl tcgIInCanvas.tcl vectormanip.tcl	X bug os		
Execution modes C Normal C Safe C Debug Call glEndTransformFeedback Clear Show Step Animate			
glEnd			
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 ylVertex3f -1.0 -1.0 0.0			
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 "glFinishTextureSUNX", which is an old, not widely used extension and therefore should not be available in most driver implementations currently in the wild. Author: Paul Obermeier			
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Date: 2009-01-10

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Demo:	rtVis		
Туре:			
Category:	Tcl3DSpecificDemos		
Root:	<u>Contents</u>		
Running on W	Ray-Tracing visualization Image: CoR: Origin CoR: Geometry Load script Image: CoR: Origin CoR: Geometry Load script Image: Show rays Tcl3DSpecificDemos Image: Primary Primary Image: Primary Primany Image: Primary </th		
Copyright:	2008-2010 Paul Obermeier (obermeier@tcl3d.org)		
See the file "Tcl3D_License.txt" for information on usage and redistribution of this file, and for a DISCLAIMER OF ALL WARRANTIES.			
Module: Filename:	Tcl3DSpecificDemos rtVis.tcl		
Author:	thor: Paul Obermeier		
Description:	Ray Tracing visualization program. The comments of the rtvis* procedures explain how to use the ray-tracing visualization commands.		

Demo:			tcl3dlnfo			
T	уре:					
C	ategory:		Tcl3DSpecificDemos			
Root:			Contents			
	tcl3dinfo: Tcl3D Infor	mation				
	File Help					
	General Tcl3D information		OpenGL Extensions (92 extensions) : <gl_nv></gl_nv>		i ? 🖬 🗖 🗙	
	Tcl packages	GL_EXT	_texture_compression_s3tc _texture_cube_map	^	Tcl3DSpecificDemos	
	GL versions	GL_EXT	_texture_edge_clamp			
	GL extensions	GL_EXT	_texture_env_add _texture_env_combine		Demo scripts	
	Cg profiles	GL_EXT GL_EXT	_texture_env_dot3 _texture_filter_anisotropic		bytearray.tcl 🔬	
	Tcl3D commands	GL_EXT	_texture_lod _texture_lod_bias		glutShapes.tcl imgViewer.tcl	
	GL commands	GL_EXT	_texture_object		modelViewer.tcl	
	GLU commands	GL_HP_	_vertex_array occlusion_test		tcl3dinfo.tcl toglinCanvas.tcl	
	WGL commands		_texture_mirrored_repeat _buffer_region		vectormanip.tcl	
	Cg commands	GL_NVX	_ycrcb blend_square			
	SDL commands	GL_NV	copy_depth_to_color			
	FTGL commands	GL_NV_ GL_NV_	depth_clamp fence	111		
	Tcl3D enumerations	GL_NV_	float_buffer fog_distance			
	GL enums	GL_NV_	fragment_program			
GLU enums GL_NV		GL_NV	light_max_exponent	_		
	WGL enums	GL_NV_ GL_NV	multisample_filter_hint occlusion_query			
	Cg enums	GL_NV_	packed_depth_stencil pixel_data_range		< >	
	SDL enums	GL_NV_	point_sprite			
	OpenGL state variables	GL_NV_	primitive_restart register_combiners			
	GL state variables		renister combiners2	~		
			92. 	_		
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	Module: Tcl3	3D				
	Filename: tcl3	BdInfo	.tcl			
Author: Paul Obern		Obern	neier			
	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:			ned with		
			information		(-info)	
			le OpenGL commands in Tcl le OpenGL enumerations in Tcl		(-cmd) (-enum)	
The information texts can also be printed to stdout whithout opening a GUI, if calling this Tcl script with any of the above listed command line options.			ript			
[Tcl3D demos at a glanc	e '	Version 0.5.0, December 2010		Page 67 of 266	

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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			
Туре:				
Category:	Tcl3DSpecificDemos			
Root:	Contents			
Tcl3D demo: Togl window in				
NW				
This i	s the canvas background NE i ? E 🗖 🗙 Tcl3DSpecificDemos			
	Demo scripts			
	bytearray.tcl			
	checkerBoard.tcl			
	glutShapes.tcl imgViewer.tcl			
	mode/Viewer.tcl			
	tcl3dlnfo.tcl togllnCanvas.tcl			
	vectormanip.tcl			
SW	SE			
Key-Escape Exit Mouse-1 2 Start Stop ani	metion			
Button Move Togl wind				
	orce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)			
toglInCanvas.tcl				
Tcl3D demo using a Togl w	indow and some button widgets inserted into a canvas.			
Author: Paul Obermeier Date: 2006-12-08				
2400. 2000 12 00				

Demo:	vectormanip			
Туре:				
Category:	Tcl3DSpecificDemos			
Root:	Contents			
TcI3D demo: Manipulating ima		i ? i X Tel3DSpecificDemos Demo scripts bytearray.tel checkerBoard.tel imgViewer.tel tel3dInfo.tel togIInCanvas.tel vectormanip.tel		
Key-2: Copy: Dest(r Key-3: Manip: Dest(b Key-4: Manip: Dest(r	w) = Src(bw) ,g,b) = Src(r,g,b) w) = -1 * Src(bw) + 255 ,g,b) = -1 * Src(r,g,b) + 255 ,g,b) = Src(g,r,b)			
	Force FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)			
<pre>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 choosen method and mapped onto the right quad. See functions execMethod? below.</pre>				

Author: Paul Obermeier Date: 2006-08-15

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

Туре:	CodeSampler				
	TutorialsAndBooks				
Root:	Contents				
Several demo applications from Kevin Harris' page have been ported to Tcl3D. The examples cover Cg, C					
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		
			Texture D FoxLure 2		
ogl_glslang_simple_vs2ps	ogl_lighting	ogl_material	ogl_multitexture_l		
ogl_near_far_clip	ogl_occlusion_query	ogl_planar_shadow	ogl_point_rotated_		
ogl_point_sprites	ogl_polygon_offset	ogl_skinning	ogl_texture_add		

Tcl3D demos at a glanceVersion 0.5.0, December 2010Page 72 of 266Copyright © 2005-2010 by Paul Obermeier. All rights reserved.

Tcl3D: Doing 3D with Tcl

www.tcl3d.org



)emo:	ogl_alpha_blending_framebuffer
уре:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents
Key-Escape Exi Key-s Sta	c; CodeSampler's Alpha Blending with the Frame Buffer CodeSampler i CodeSampler C
Running on Linux wit	th a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)
Authc Last Modifie	<pre>de: ogl_alpha_blending_framebuffer.cpp or: Kevin Harris (kevin@codesampler.com) d: 03/25/05 on: 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.</pre>
Control Key	rs: b - Toggle blending
See www.codes	code by Kevin Harris (kevin@codesampler.com) ampler.com for the original files s page 4: Alpha Blending in the Frame buffer

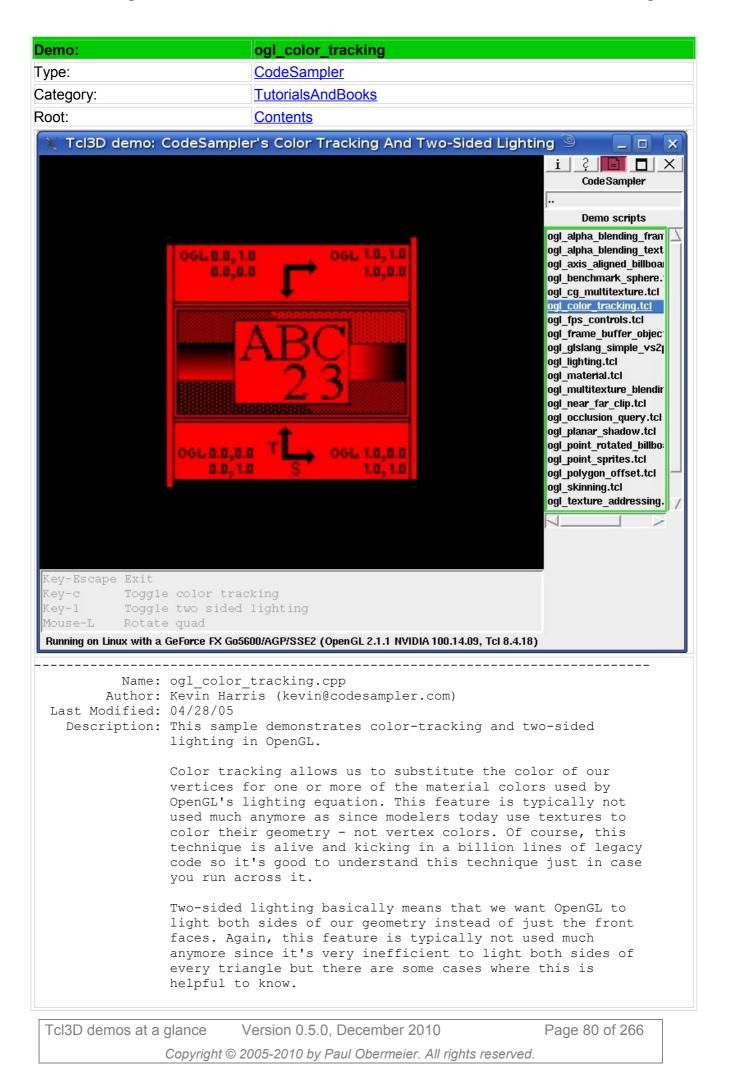
CodeSampler Category: TutorialsAndBooks Root: Contents X Tcl3D demo: CodeSampler's Texture Alpha Blending (2) Image: CodeSampler's Texture Alpha Blending (2)	Demo:	ogl_alpha_blending_texture	
Category: TutorialsAndBooks Root: Contents Tcl3D demo: CodeSampler's Texture Alpha Blending Tcl3D demo: CodeSampler's Tcl3D demo: CodeSampler's Texture addressing Tcl3D demo: CodeSampler's Tcl3D demo: Tcl3D demo: CodeSampler Tcl3D demo: Tcl3D demo			
Root: Contents TCI3D demo: CodeSampler's Texture Alpha Blending TCI3D demo: CodeSampler's TCI3D demo: This sample demonstrates how to perform alpha blending using the alpha channel of a standard tga texture. TCI3D demo: TCI3D demonstrates TCI3D demo: TCI3D demonstrates TCI3D demonst			
Tcl3D demo: CodeSampler's Texture Alpha Blending Image: CodeSampler's Texture Image: CodeSampler's		Contents	
<pre>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</pre>	Key-Escape Exi Key-b Tog Key-b Tog Key-Up Inc Key-Down Dec Mouse-L Rot	c: CodeSampler's Texture Alpha Blending	i ? Code Sampler Demo scripts ogl_alpha_blending_fram ogl_alpha_blending_text ogl_axis_aligned_billboau ogl_axis_aligned_billboau ogl_benchmark_sphere. ogl_cg_multitexture.tcl ogl_color_tracking.tcl ogl_fps_controls.tcl ogl_frame_buffer_objec: ogl_gIslang_simple_vs2l ogl_gIslang_simple_vs2l ogl_material.tcl ogl_material.tcl ogl_multitexture_blendir ogl_near_far_clip.tcl ogl_occlusion_query.tcl ogl_point_rotated_billbo ogl_point_sprites.tcl ogl_polygon_offset.tcl ogl_skinning.tcl
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.			
Tcl3D demos at a glanceVersion 0.5.0, December 2010Page 75 of 266	Last Modifie Descriptio	<pre>ed: 03/25/05 on: This sample demonstrates how to perform alpha b the alpha channel of a standard .tga texture. F alpha blending, the sample uses a cull-mode sor to ensure the sides of the textured cube get re back-to-front order. ex: b - Toggle blending s - Toggle usage of cull-mode sorting trick Up Arrow - Move the test cube closer</pre>	or proper
	Last Modifie Descriptio Control Key Original C++ See www.codes OpenGL sample http://www.co Modified for	<pre>ed: 03/25/05 on: This sample demonstrates how to perform alpha b the alpha channel of a standard .tga texture. F alpha blending, the sample uses a cull-mode sor to ensure the sides of the textured cube get re back-to-front order. rs: 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 code by Kevin Harris (kevin@codesampler.com) eampler.com for the original files es page 3: Alpha Texture Blending odesampler.com/oglsrc/oglsrc_3.htm#ogl_alpha_blendi Tcl3D by Paul Obermeier 2008/05/01</pre>	For proper

Demo:	ogl_axis_aligned_billboard	
Туре:	CodeSampler	
Category:	TutorialsAndBooks	
Root:	Contents	
	CodeSampler's Axis Aligned Billboard	i code Sampler Code Sampler Demo scripts ogl_alpha_blending_fran ogl_alpha_blending_text ogl_alpha_blending_text ogl_axis_aligned_billboal ogl_benchmark_sphere. ogl_cg_multitexture.tcl ogl_cloor_tracking.tcl ogl_fps_controls.tcl ogl_fps_controls.tcl ogl_ffame_buffer_objec ogl_glslang_simple_vs2l ogl_lighting.tcl ogl_material.tcl ogl_material.tcl ogl_near_far_clip.tcl ogl_occlusion_query.tcl ogl_planar_shadow.tcl ogl_point_rotated_billboal ogl_point_sprites.tcl ogl_polygon_offset.tcl ogl_skinning.tcl ogl_texture_addressing.
Key-Up Down Vie Key-Left Down Vie Key-Home End Vie Billboarding is o	ggle billboarding ew moves forward backward ew strafes to the left right ew elevates up down	
Author: Last Modified:	An example of axis aligned billboarding.	
	OpView moves forwardDown- View moves backwardLeft- View strafes leftRight- View strafes RightLeft Mouse- Perform lookingMouse- Look about the scene	
See www.codesam	de by Kevin Harris (kevin@codesampler.com) oler.com for the original files page 8: Axis-Aligned Billboards	
	13D by Paul Obermeier 2007/03/10 rg for the Tcl3D extension.	

Type: CodeSampler Category: TutorialsAndBooks Root: Contents TcI3D demo: CodeSampler's Benchmarking Test App Contents TcI3D demo: CodeSampler's Benchmarking Test App Contents CodeSampler	Demo:	ogl_benchmark_sphere	
Category: TutorialsAndBooks Root: Contents Tcl3D demo: CodeSampler's Benchmarking Test App Tcl3D demos at glance Version 0.5.0, December 2010 Page 77 of 266			
Root: Tcl3D demo: CodeSampler's Benchmarking Test App () () () () () () () () () ()			
<pre>i ?</pre>	Root:		
ogi point_prites.ici ogi point_sprites.ici ogj point_sprites.ici ogj point_sprites.ici ogj_skoming.ici ogj_lowint_sprites.ici ogj_skoming.ici ogj_lowint_sprites.ici ogj_skoming.ici ogj_lowint_sprites.ici ogj_skoming.ici ogj_lowint_sprites.ici rey-F3 Use Immediate mode calling Tcl. tey-F3 Use Immediate mode calling Tcl. tey-F5 Use I averta Array. Key-F5 Use a Vertex Array. Key-F5 Use a Vertex Array. Key-F7 Toggle Wireframe mode. Running on Linux with a GeFore FX GosGoO/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. 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	7		i ? Code Sampler Demo scripts ogl_alpha_blending_fram ogl_alpha_blending_text ogl_axis_aligned_billboai ogl_benchmark_sphere. ogl_cg_multitexture.tcl ogl_color_tracking.tcl ogl_fps_controls.tcl ogl_fps_controls.tcl ogl_frame_buffer_objec ogl_glslang_simple_vs2l ogl_lighting.tcl ogl_material.tcl ogl_material.tcl ogl_multitexture_blendir ogl_near_far_clip.tcl
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 TCI3D demos at a glance Version 0.5.0, December 2010 Page 77 of 266	Key-F1 F2 Decrease Key-F3 Use Immed Key-F8 Use Immed Key-F4 Use a Dis Key-F5 Use a Ver Key-F6 Start ber Key-S Stop runn Key-F7 Toggle w	diate mode calling C. diate mode calling Tcl. splay List. tex Array. nchmark. ning benchmark. reframe mode.	ogl_point_rotated_billbo ogl_point_sprites.tcl ogl_polygon_offset.tcl ogl_skinning.tcl ogl_texture_addressing.
F1 - Decrease sphere precision.F2 - Increase sphere precision.F3 - Use Immediate modeF4 - Use a Display ListF5 - Use a Vertex ArrayF6 - Perform BenchmarkingF7 - Toggle wire-frame mode.Original C++ code by Kevin Harris (kevin@codesampler.com)See www.codesampler.com for the original filesOpenGL samples page 9: Benchmarking Test AppTcl3D demos at a glanceVersion 0.5.0, December 2010Page 77 of 266	Name: og Author: Ke Last Modified: 04 Description: Re Im co	l_benchmark_sphere.cpp vin Harris (kevin@codesampler.com) /21/05 nders a textured sphere using either Immed mediate Mode calls cached in a Display Lis llection of geometric data stored in an in	diate Mode calls, st, or as a
Tcl3D demos at a glanceVersion 0.5.0, December 2010Page 77 of 266	F1 F2 F3 F4 F5 F6 F7 Original C++ code See www.codesample	 Decrease sphere precision. Increase sphere precision. Use Immediate mode Use a Display List Use a Vertex Array Perform Benchmarking Toggle wire-frame mode. 	
			Page 77 of 266
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Modified for Tcl3D by Paul Obermeier 2005/11/07 See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_cg_multitexture
Туре:	CodeSampler
Category:	TutorialsAndBooks
Root:	<u>Contents</u>
💢 Tcl3D demo: CodeSample	er's Multi-Texturing Using Cg 🎱 📃 🗖 🗙
X Tcl3D demo: CodeSample	i 2 Code Sampler Demo scripts ogl_alpha_blending_fram ogl_alpha_blending_text ogl_axis_aligned_billboa ogl_benchmark_sphere: ogl_color_tracking.tcl ogl_color_tracking.tcl ogl_fps_controls.tcl ogl_fps_controls.tcl ogl_glslang_simple_vs2l ogl_glslang_simple_vs2l ogl_material.tcl ogl_material.tcl ogl_near_far_clip.tcl ogl_point_rotated_billboa ogl_point_sprites.tcl ogl_point_sprites.tcl ogl_polygon_offset.tcl
✓ Cg Semantics ◆ OpenGL Semantics	
Profile: CG_PROFILE_ARBFP1 File: ogl_cq Running on Linux with a GeForce FX Go5]_mulutexture-gi.cg 600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)
Name: ogl_cg_mu Author: Kevin Har Last Modified: 04/26/05 Description: This samp with Cg u (using se cgGLSetTe	ltitexture.cpp
See www.codesampler.com f OpenGL samples page 10: M Modified for Tcl3D by Pau See www.tcl3d.org for the The original demo has bee between the two call sema To visualize, that a diff	ulti-Texturing with Cg 1 Obermeier 2007/05/22 Tcl3D extension. n extended with a little GUI to allow switching



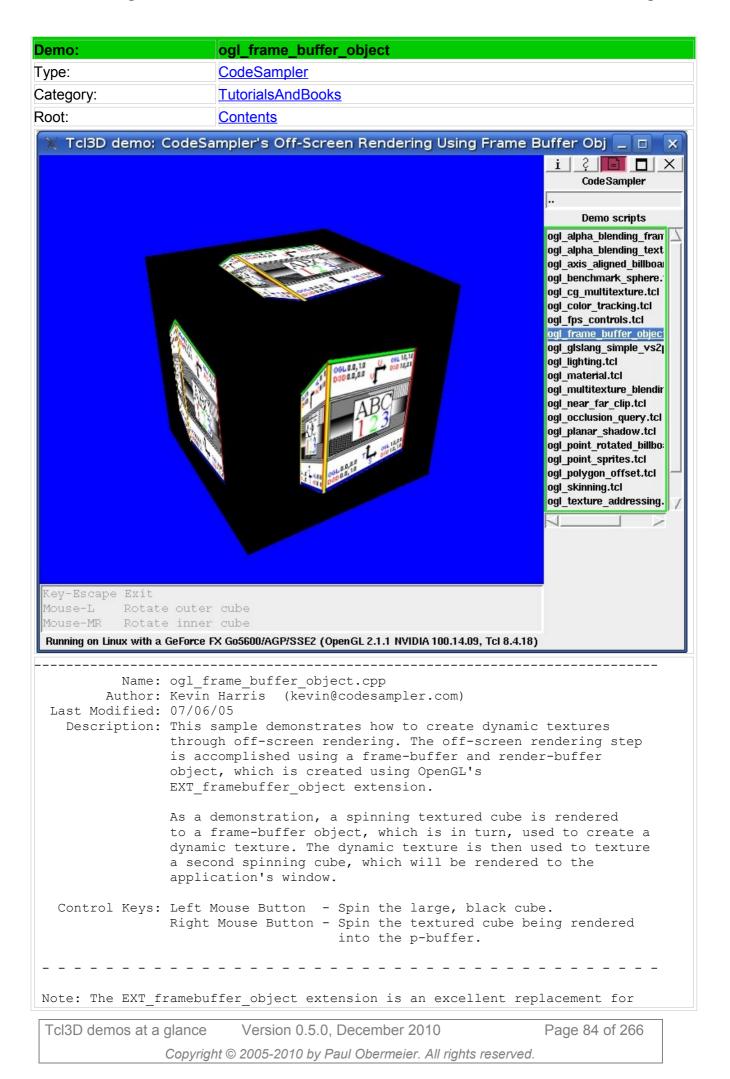
```
Control Keys: c - Toggle between a material color or color tracking the
vertices
1 - Toggle two-sided lighting
Original C++ code by Kevin Harris (kevin@codesampler.com)
See www.codesampler.com for the original files
OpenGL samples page 5: Color Tracking and Two-Sided lighting
http://www.codesampler.com/oglsrc/oglsrc_5.htm#ogl_color_tracking
Modified for Tcl3D by Paul Obermeier 2008/05/01
See www.tcl3d.org for the Tcl3D extension.
```

Demo:	O	gl_fps_controls	
Туре:	C	odeSampler	
Category:	T	utorialsAndBooks	
Root:	C	ontents	
X Tcl3D demo: Cc X Tcl3D demo: Cc Key-Escape Exi Key-Up Down Viet Key-Left Right Viet Key-Home End Viet	t w moves forwar w strafes to w w elevates up	First Person Shooter Controls	i ? Code Sampler Demo scripts ogl_alpha_blending_fram ogl_alpha_blending_text ogl_azis_aligned_billboa ogl_benchmark_sphere. ogl_cg_multitexture.tcl ogl_fps_controls.tcl ogl_fps_controls.tcl ogl_frame_buffer_objec ogl_gIslang_simple_vs2l ogl_lighting.tcl ogl_multitexture_blendir ogl_near_far_clip.tcl ogl_point_rotated_billboa ogl_point_sprites.tcl ogl_point_sprites.tcl ogl_texture_addressing.
Author: K Last Modified: O Description: T b	2/01/05 his sample d	ols.cpp (kevin@codesampler.com) emonstrates how to collect user in m view matrix for First Person Sho	
L R L M H	oown - heft - hight - heft Mouse - louse - home -	View moves forward View moves backward View strafes left View strafes Right Perform looking Look about the scene View moves up View moves down	
See www.codesampl OpenGL samples pa	er.com for t ge 5: First	rris (kevin@codesampler.com) he original files Person Shooter Controls ermeier 2005/11/05	
		on 0.5.0, December 2010 2010 by Paul Obermeier. All rights reserved.	Page 82 of 266

See www.tcl3d.org for the Tcl3D extension.

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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

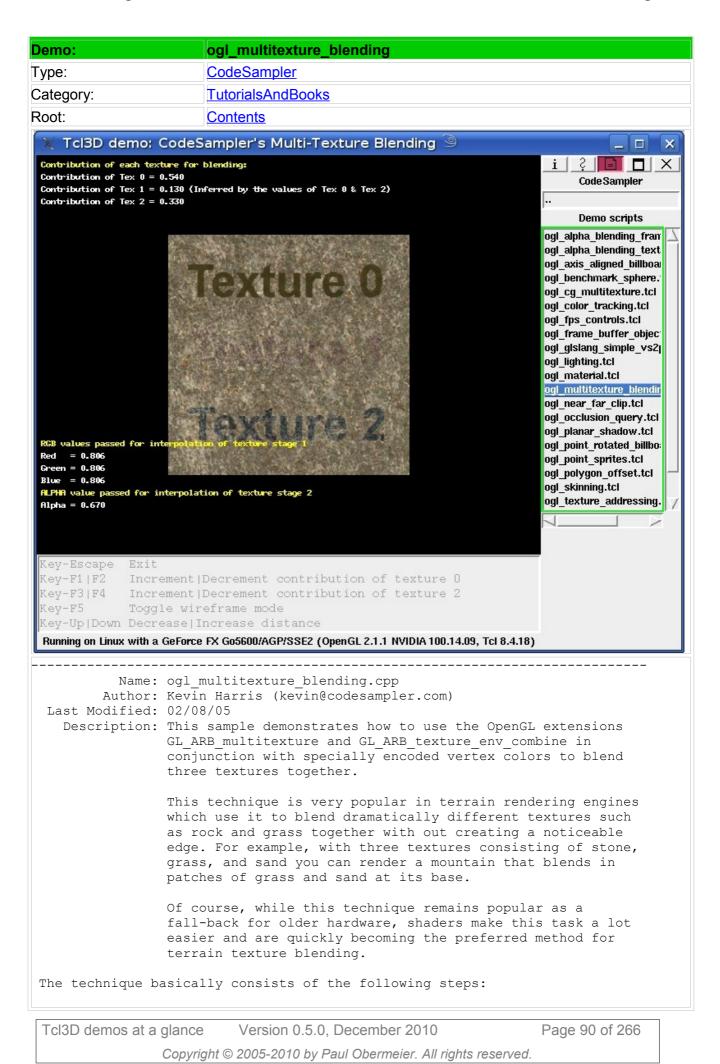
Modified for Tcl3D by Paul Obermeier 2007/02/25 See www.tcl3d.org for the Tcl3D extension.

Demo:	ogl_glslang_simple_vs2ps	
уре:	CodeSampler	
Category:	TutorialsAndBooks	
Root:	<u>Contents</u>	
6	CodeSampler's Simple vertex & fragment sh	ader with GLSL
	OGL 0.0,0.0 T OGL 1.0,0.0 DSD 0.0,1.0 S DSD 1.0,1.0	ogl_point_rotated_billbo ogl_point_sprites.tcl ogl_polygon_offset.tcl ogl_skinning.tcl ogl_texture_addressing.
Running on Linux with a Name: Author: Last Modified:		
Key-F1 Togg1 Running on Linux with a Name: Author: Last Modified: Description:	GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, ogl_glslang_simple_vs2ps.cpp Kevin Harris (kevin@codesampler.com)	ertex and fragment hading language
Key-F1 Togg1 Running on Linux with a Name: Author: Last Modified: Description: Control Keys: Note: The fragm fixed-fun change wh the verte the two t brighter,	GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, ogl_glslang_simple_vs2ps.cpp Kevin Harris (kevin@codesampler.com) 04/21/05 This sample demonstrates how to write v shaders using OpenGL's new high-level si GLslang.	ertex and fragment hading language t shaders. m what the n see a noticeable ead of modulating agment shader adds r to produce a
Key-F1 Togg1 Running on Linux with a Name: Author: Last Modified: Description: Control Keys: Note: The fragm fixed-fun change wh the verte the two t brighter, the fragm Original C++ co See www.codesam	<pre>GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, ogl_glslang_simple_vs2ps.cpp Kevin Harris (kevin@codesampler.com) 04/21/05 This sample demonstrates how to write v shaders using OpenGL's new high-level st GLslang. F1 - Toggle usage of vertex and fragmen ent shader has been changed slightly from ction pipeline does by default so you can en toggling the shaders on and off. Inst x color with the texture's texel, the fr ogether, which causes the fragment shade washed-out image. This modification can</pre>	ertex and fragment hading language t shaders. m what the n see a noticeable ead of modulating agment shader adds r to produce a be switched back in
Key-F1 Togg1 Running on Linux with a Name: Author: Last Modified: Description: Control Keys: Note: The fragm fixed-fun change wh the verte the two t brighter, the fragm Original C++ co See www.codesam	<pre>GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, ogl_glslang_simple_vs2ps.cpp Kevin Harris (kevin@codesampler.com) 04/21/05 This sample demonstrates how to write v shaders using OpenGL's new high-level st GLslang. F1 - Toggle usage of vertex and fragmen ent shader has been changed slightly from ction pipeline does by default so you can en toggling the shaders on and off. Inst x color with the texture's texel, the fr ogether, which causes the fragment shade washed-out image. This modification can ent shader file. de by Kevin Harris (kevin@codesampler.com pler.com for the original files page 10: Simple Vertex & Fragment Shader</pre>	ertex and fragment hading language t shaders. m what the n see a noticeable ead of modulating agment shader adds r to produce a be switched back in

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

Demo:	ogl_lighting
Туре:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents
X Tcl3D demo: CodeSample	i ? Code Sampler Demo scripts ogl_alpha_blending_fram ogl_alpha_blending_text ogl_axis_aligned_billboa ogl_benchmark_sphere. ogl_cg_multitexture.tcl ogl_color_tracking.tcl ogl_fps_controls.tcl ogl_frame_buffer_objec
Key-Escape Exit Key-s Start Stop Animat Key-d Change to directi Key-o Change to spot li Key-p Change to point l Key-w Toggle wireframe Running on Linux with a GeForce FX Go56	onal light ght ight
Last Modified: 02/01/05 Description: This sampl	ng.cpp is (kevin@codesampler.com) e demonstrates the three basic types of lights vailable in OpenGL: directional, spot, and point.
Control Keys: l - Change w - Toggle	s the light's type s wire frame mode
See www.codesampler.com fo OpenGL samples page 5: Lic	hting /oglsrc/oglsrc_5.htm#ogl_lighting Obermeier 2008/05/01

Demo:	ogl_material
Туре:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents
X Tcl3D demo: CodeSampler' V V <td>i ? Code Sampler Code Sampler Demo scripts ogl_alpha_blending_fran ogl_alpha_blending_text ogl_axis_aligned_billboa ogl_benchmark_sphere. ogl_cg_multitexture.tcl ogl_color_tracking.tcl ogl_frame_buffer_objec: ogl_glslang_simple_vs2l ogl_glslang_simple_vs2l ogl_material.tcl ogl_material.tcl ogl_near_far_clip.tcl ogl_planar_shadow.tcl ogl_planar_shadow.tcl ogl_point_rotated_billbo ogl_point_sprites.tcl ogl_platar_sprites.tcl ogl_platar_sprites.tcl ogl_texture_addressing.</td>	i ? Code Sampler Code Sampler Demo scripts ogl_alpha_blending_fran ogl_alpha_blending_text ogl_axis_aligned_billboa ogl_benchmark_sphere. ogl_cg_multitexture.tcl ogl_color_tracking.tcl ogl_frame_buffer_objec: ogl_glslang_simple_vs2l ogl_glslang_simple_vs2l ogl_material.tcl ogl_material.tcl ogl_near_far_clip.tcl ogl_planar_shadow.tcl ogl_planar_shadow.tcl ogl_point_rotated_billbo ogl_point_sprites.tcl ogl_platar_sprites.tcl ogl_platar_sprites.tcl ogl_texture_addressing.
Last Modified: 04/28/05 Description: This sample	demonstrates how to use materials with lighting different surface effects.
See www.codesampler.com for OpenGL samples page 5: Mate	rials oglsrc/oglsrc_5.htm#ogl_material Dbermeier 2008/04/28



Tcl3D: Doing 3D with Tcl

<pre>Step 1: Take the desired contribution of the three textures and encode them into the vertex's color such that the RGE 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_ARE_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_ARE to linearly interpolate between the output_of stage 0 and the texture of stage 1 with GL_SRC_COLOR (i.e. the RGE part of the color). Step 4: During texture stage 2, use GL_INTERPOLATE_ARE 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 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 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 contributions of textures 0 and 2. </pre>	
<pre>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 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 contributions of texture 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 </pre>	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
<pre>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 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 of texture 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 </pre>	
<pre>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 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 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 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</pre>	Step 3: Set the first texture on texture stage 0.
<pre>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 contributions of texture 3 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</pre>	interpolate between the output of stage 0 and the texture of stage 1
 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 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	interpolate between the output of stage 1 and the texture of stage 2
<pre>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.</pre>	 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
See www.codesampler.com for the original files OpenGL samples page 4: Multi-Texture Blending Modified for Tcl3D by Paul Obermeier 2007/03/10	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
	See www.codesampler.com for the original files

-	ogl_near_far_clip	
уре:	CodeSampler	
Category:	TutorialsAndBooks	
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💥 Tcl3D demo:	CodeSampler's Near/Far Clip Plane 🥯	
		i Code Sampler Code Sampler Demo scripts Ogl_alpha_blending_fran ogl_alpha_blending_text ogl_azis_aligned_billboa ogl_benchmark_sphere. ogl_cg_multitexture.tcl ogl_color_tracking.tcl ogl_fps_controls.tcl ogl_fps_controls.tcl ogl_glslang_simple_vs2l ogl_glslang_simple_vs2l ogl_glslang_simple_vs2l ogl_nultitexture_blendir ogl_near_far_clip.tcl ogl_point_rotated_billbo: ogl_point_sprites.tcl ogl_skinning.tcl ogl_skinning.tcl ogl_texture_addressing.
	Exit	
Key-F3 F4 In Key-Up Down V Key-Left Right V Key-Home End V Running on Linux with a Name: Author: Last Modified:	: This sample demonstrates how adjustments t	
Key-F3 F4 IN Key-Up Down V Key-Left Right V Key-Home End V Running on Linux with a Name: Author: Last Modified:	<pre>Increase Decrease far clip plane View moves forward backward View strafes to the left right View elevates up down a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 6 cost of the strain of the</pre>	
Key-F3 F4 In Key-Up Down V Key-Left Right V Key-Home End V Running on Linux with a Name: Author: Last Modified: Description: Control Keys: Original C++ co See www.codesam	<pre>Increase Decrease far clip plane View moves forward backward View strafes to the left right View elevates up down a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8 : ogl_near_far_clip.cpp : Kevin Harris (kevin@codesampler.com) : 02/01/05 : This sample demonstrates how adjustments t near and far clip planes effect the view. : 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 far clip value F3 - Increase far clip value F4 - Decrease far clip value F4 - Decrease far clip value code by Kevin Harris (kevin@codesampler.com) mpler.com for the original files</pre>	
Key-F3 F4 In Key-Up Down V Key-Left Right V Key-Home End V Running on Linux with a Name: Author: Last Modified: Description: Control Keys: Original C++ co See www.codesam	<pre>Increase Decrease far clip plane /iew moves forward backward /iew strafes to the left right /iew elevates up down a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8 : ogl_near_far_clip.cpp : Kevin Harris (kevin@codesampler.com) : 02/01/05 : This sample demonstrates how adjustments t near and far clip planes effect the view. : 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 F4 - Decrease far clip value F5 - Decrease far clip value F6 - Decrease far clip value F7 - Decrease far clip value F7 - Decrease far clip value F4 - Decrease far clip value F5 - Decrease far clip value F6 - Decrease far clip value F7 - Decrease far clip value</pre>	
Key-F3 F4 In Key-Up Down V Key-Left Right V Key-Home End V Running on Linux with a Name: Author: Last Modified: Description: Control Keys: Original C++ co See www.codesam OpenGL samples	<pre>Increase Decrease far clip plane View moves forward backward View strafes to the left right View elevates up down a GeForce FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8 : ogl_near_far_clip.cpp : Kevin Harris (kevin@codesampler.com) : 02/01/05 : This sample demonstrates how adjustments t near and far clip planes effect the view. : 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 far clip value F3 - Increase far clip value F4 - Decrease far clip value F4 - Decrease far clip value code by Kevin Harris (kevin@codesampler.com) mpler.com for the original files</pre>	

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

Demo:	ogl_occlusion_query
Туре:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents
Plane Fragments = 25373 Sphere Fragments = 22019	obler's Occlusion Query using the ARB extension i Cale Sampler Demo scripts gg[_axis_aligned_billioa ogl_benchmark_sphere. ogl_cg_multitexture.tcl ogl_frame_bulfer_objec: ogl_gislang_simple_vs2l ogl_frame_bulfer_objec: ogl_material.tcl ogl_material.tcl ogl_material.tcl ogl_planar_shadow.tcl ogl_planar_shadow.tcl ogl_point_sprites.tcl ogl_point_sprites.tcl ogl_point_sprites.tcl ogl_point_sprites.tcl ogl_planar_shadow.tcl ogl_planar_shad
Author: Kevin Ha Last Modified: 02/01/05 Description: This sam ARB_occl	ple demonstrates how to use OpenGL's new extension, usion_query and NV_occlusion_query.
Control Keys: Left Mou	se Button - Spin the view
See www.codesampler.com OpenGL samples page 7: C Modified for Tcl3D by Pa	ul Obermeier 2007/03/10
See www.tcl3d.org for th	
file.	ARB_occlusion_query and NV_occlusion_qeury code into one mmand line arguments, it uses the ARB_occlusion_query
	use the NV_occlusion_query extension.

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Demo:	ogl_planar_shadow	
Туре:	CodeSampler	
Category:	TutorialsAndBooks	
Root:	Contents	
Key-Escape Exit Key-Up Down Mc Key-Left Right Mc Key-Left Right Mc Key-Left Sight Mc Key-Left Sight Mc Key-S To Mouse-L Sp Mouse-MR Sp Stencil is ON	CodeSampler's Planar Shadows	i Code Sampler Code Sampler Demo scripts Ogl_axis_aligned_billboa ogl_benchmark_sphere. ogl_cg_multitexture.tcl ogl_fps_controls.tcl ogl_fps_controls.tcl ogl_frame_buffer_objec ogl_gislang_simple_vs2l ogl_ighting.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_skinning.tcl ogl_texture_addressing. ogl_vertex_displacemen oglu_projtexture.tcl
Author: Last Modified:	ogl_planar_shadow.cpp Kevin Harris (kevin@codesampler.com) 02/01/05 This sample demonstrates how to create planar OpenGL. Planar shadows are created by building a speci matrix which flattens an object's geometry int rendered.	al projection
Control Keys:	If the plane, which the geometry is flattened up with another planar surface like a floor or flattened geometry can be made to resemble a s surface. Up - Light moves up Down - Light moves down Left - Light moves left	a wall, the
	Right - Light moves right Left Mouse Button - Spin the view Right Mouse Button - Spin the teapot	
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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	
уре:	CodeSampler	
Category:	TutorialsAndBooks	
Root:	Contents	
X TcI3D demo:	CodeSampler's Point Rotated Billboard	i Code Sampler Demo scripts ogl_axis_aligned_billboai ogl_benchmark_sphere. ogl_cg_multitexture.tcl ogl_color_tracking.tcl ogl_fps_controls.tcl ogl_fps_controls.tcl ogl_gislang_simple_vs2i ogl_gislang_simple_vs2i ogl_gislang_timple_vs2i ogl_naterial.tcl ogl_multitexture_blendir ogl_near_far_clip.tcl ogl_occlusion_query.tcl ogl_point_rotated_billbor ogl_point_sprites.tcl ogl_point_sprites.tcl ogl_polygon_offset.tcl ogl_texture_addressing. ogl_vertex_displacemen oglu_projtexture.tcl
Key-Up Down Vie Key-Left Down Vie Key-Home End Vie Billboarding is o	ggle billboarding ew moves forward backward ew strafes to the left right ew elevates up down	18)
Author: Last Modified:	An example of point rotated billboarding.	
See www.codesamy OpenGL samples p	de by Kevin Harris (kevin@codesampler.com) pler.com for the original files page 8: Point-Rotated Billboards 13D by Paul Obermeier 2007/03/10	

Demo:	ogl_point_sprites
Туре:	<u>CodeSampler</u>
Category:	TutorialsAndBooks
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7	contents pdeSampler's Point Sprites i i Code Sampler Demo scripts ogl_axis_aligned_billboa ogl_color_tracking.tcl ogl_fps_controls.tcl ogl_material.tcl ogl_material.tcl ogl_onear_far_clip.tcl ogl_point_sprites.tcl ogl_vertex_displacemen ogl_vertex_displacemen
Mouse-L Rotate Running on Linux with a Name:	<pre>top Animation Force FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18) gl_point_sprites.cpp evin Harris (kevin@codesampler.com) 2/01/05</pre>
Description: Original C++ coo See www.codesamp	his sample demonstrates how to create point sprites sing OpenGL's new GL_ARB_point_sprite extension, which an be used to create point-rotated billboards on the GPU.
Modified for Tc	D by Paul Obermeier 2005/11/08 for the Tcl3D extension.

Demo:	ogl_polygon_offset
Туре:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents
💥 Tcl3D demo: Co	odeSampler's Polygon Offset 🥥 📃 🗖 🗙
Offset Factor = 0.04 Offset Unit = -1.00 Key-Escape Exit Key-F1 F2 Increme Key-F3 F4 Increme	i CodeSampler Demo scripts ogl_axis_aligned_billboa ogl_concreation ogl_concreation ogl_concreation ogl_concreation ogl_gistang_simple_vs21 ogl_lighting.tcl ogl_near_far_clip.tcl ogl_point_sprites.tcl ogl_point_sprites.tcl ogl_point_sprites.tcl ogl_point_sprites.tcl ogl_point_sprites.tcl ogl_skinning.tcl ogl_skinning.tcl ogl_ogl_skinning.tcl ogl_point_sprites.tcl ogl_skinning.tcl ogl_station ogl_point_sprites.tcl <
Author: K Last Modified: C Description: T	ogl_polygon_offset.cpp Kevin Harris (kevin@codesampler.com) 02/01/05 This sample demonstrates how to eliminate z-fighting when cendering polygons directly on top of other polygons.
E E E	Left Mouse Button - Spin the view F1 - Increase Offset Factor F2 - Decrease Offset Factor F3 - Increase Offset Unit F4 - Decrease Offset Unit
See www.codesampl OpenGL samples pa Modified for Tcl3 See www.tcl3d.org	e by Kevin Harris (kevin@codesampler.com) er.com for the original files age 5: Polygon Offset 3D by Paul Obermeier 2007/03/05 g for the Tcl3D extension. pengl.org/sdk/docs/man/xhtml/glPolygonOffset.xml nOffset command.
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	opyright © 2005-2010 by Paul Obermeier. All rights reserved.

Demo:	ogl_skinning
Туре:	CodeSampler
Category:	TutorialsAndBooks
Root:	<u>Contents</u>
¥ Tcl3D demo: C	odeSampler's Matrix Palette Skinning on the Hardware usin I
Mouse-MR Spin Key-s Start Key-Up Down Incre Key-F1 Toggl Key-F2 Toggl	he matrix for bone 0. he matrix for bone 1. Stop animation. se Decrease distance. test geometry. wireframe mode. Force FX Go5600/AGP/SSE2 (OpenGL 2.1.1 NVIDIA 100.14.09, Tcl 8.4.18)
Author: Last Modified: Description:	his sample demonstrates how to skin a mesh on the hardware sing a Cg or GLSL shader. To keep things simple, the skeletal ystem used in this sample is very simple and only consists f two bones or bone matrices. pecial thanks go out to Cyril Zeller, and Matthias Wloka f nVIDIA for their help in straightening out a few oddities hat my sample was suffering from. In short, Cg works fine nd I'm occasionally a big dummy! ;)
	<pre>eft Mouse Button - Spin the matrix for bone0. ight Mouse Button - Spin the matrix for bone1. 1 - Toggle test geometry between a cylinder and a simple grouping of 3 quads. 2 - Toggle wire-frame mode </pre>
Original C++ cod	by Kevin Harris (kevin@codesampler.com)
Tcl3D demos at a g	ance Version 0.5.0, December 2010 Page 100 of 266
	opyright © 2005-2010 by Paul Obermeier. All rights reserved.

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: o	gl_texture_addressing
Туре:	odeSampler
Category:	utorialsAndBooks
Root: C	contents
GL_TEXTURE_URRP_S = GL_NIRRORED_REPEAT GL_TEXTURE_URRP_T = GL_REPEAT	CodeSampler Demo scripts ogl_adsis_adigned_billbace. ogl_ogl_oner_tracking.tcl ogl_opl_oner_fracking.tcl ogl_opl_frsc_torois.tcl ogl_opl_ingting.tcl ogl_opl_material.tcl ogl_opl_opl_opl_material.tcl ogl_opl_opl_opl_opl_material.tcl ogl_opl_opl_opl_opl_opl_opl_opl_opl_opl_op
	inges addressing method for the S coordinates inges addressing method for the T coordinates
Original C++ code by Kev See www.codesampler.com OpenGL samples page 3: I	
Modified for Tcl3D by Pa See www.tcl3d.org for th	

Demo:	ogl_vertex_displacement
Туре:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents
Key-Escape Exit Key-S Start St Key-F3 Toggle w Command line parameter	i i
o Author: K Last Modified: O Description: T v Control Keys: F F F Original C++ code See www.codesampl	<pre>gl_cg_vertex_displacement.cpp gl_glslang_vertex_displacement.cpp evin Harris (kevin@codesampler.com) 4/21/05 his sample demonstrates how to perform mesh deformation or ertex displacement with OpenGL using a Cg or GLSL shader. 1 - Increase flag motion 2 - Decrease flag motion 3 - Toggle wire-frame mode </pre>
Modified for Tcl3 See www.tcl3d.org	D by Paul Obermeier 2005/11/05 for the Tcl3D extension.
If called with no	rates the Cg and GLSL code into one file. command line arguments, it uses the GLSL shader. nd line parameter to use the Cg shader.
Tcl3D demos at a gla	ance Version 0.5.0, December 2010 Page 103 of 266
	pyright © 2005-2010 by Paul Obermeier. All rights reserved.

Demo:	oglu_projtexture
Туре:	CodeSampler
Category:	TutorialsAndBooks
Root:	Contents
7	
	r's Projected Texture
	a projected texture technique can be used to produce a
light map.	
	ough you have very few vertices available for the fixed
function	you can achieve nice per nivel lighting even though
the surface	n, you can achieve nice per pixel lighting even though

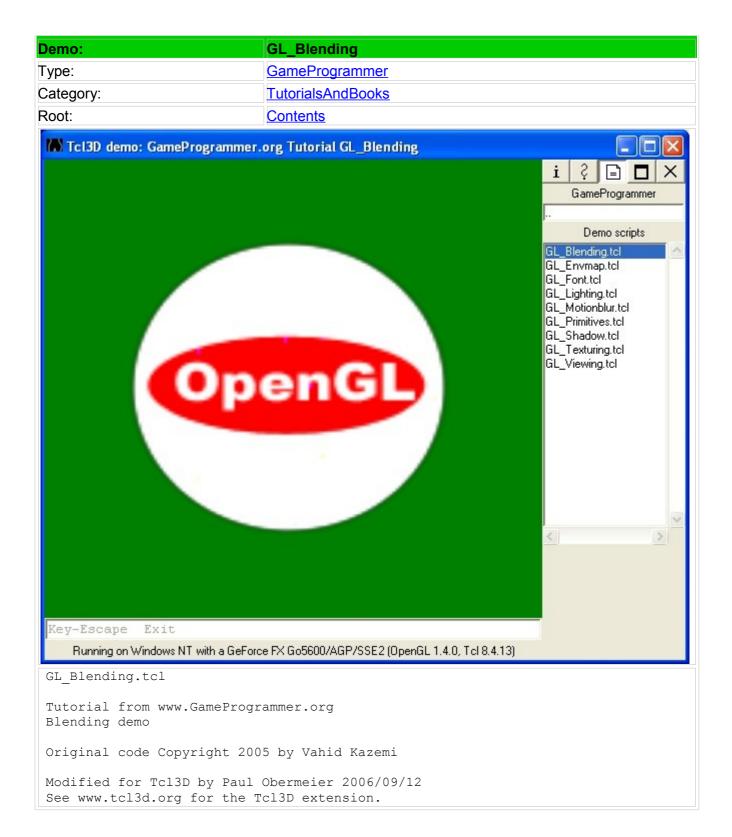
has only a handful of vertices.

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

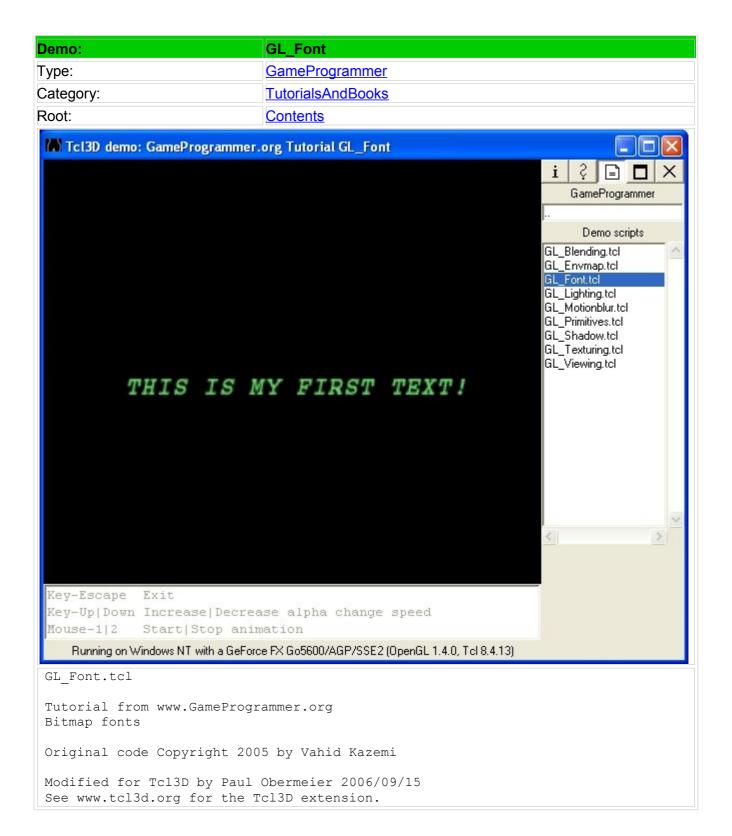
function pipeline.
The left mouse button will move the cube around and the right mouse button will
move the
projected # light map around.

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



Demo:	GL_Envmap
Туре:	GameProgrammer
Category:	TutorialsAndBooks
Root:	Contents
Key-Escape Exit	Image: Arrow of the second
Key-Up Down Increase Decres Mouse-1 2 Start Stop anim	
	ce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
GL Texturing.tcl	
- Tutorial from www.GameProgr Using Textures Original code Copyright 200)4 by Vahid Kazemi
Modified for Tcl3D by Paul See www.tcl3d.org for the T	



Demo:	GL_Lighting
Туре:	GameProgrammer
Category:	TutorialsAndBooks
Root:	Contents
Tcl3D demo: GameProgrammer	.org Tutorial GL_Lighting i ? = X GameProgrammer Demo scripts GL_Blending.tcl GL_Envmap.tcl GL_Envmap.tcl GL_Envmap.tcl GL_Direction GL_Direction GL_Direction GL_Primitives.tcl
	GL_Shadow.tcl GL_Texturing.tcl GL_Viewing.tcl
Key-Escape Exit Key-Up Down Increase Decrea Mouse-1 2 Start Stop anin Bunning on Windows NI with a GeFore	
GL Lighting.tcl	
Tutorial from www.GameProgr Turn the lights on!	rammer.org
Original code Copyright 200)4 by Vahid Kazemi
Modified for Tcl3D by Paul See www.tcl3d.org for the T	

Demo:	GL_Motionblur
Туре:	GameProgrammer
Category:	TutorialsAndBooks
Root:	Contents
	Contents : GameProgrammer.org Tutorial GL_Motionblur i ? Demo scripts GL_Blending.tcl GL_Fort.tcl GL_Fort.tcl GL_Lighting.tcl GL_Shadow.tcl GL_Texturing.tcl GL_Viewing.tcl
Mouse-1 2	Exit Increase Decrease rotation speed Start Stop animation /indows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
	ur.tcl
Tutorial fro Using Textur	om www.GameProgrammer.org Tes
Original cod	le Copyright 2006 by Vahid Kazemi
	Tcl3D by Paul Obermeier 2006/09/14 d.org for the Tcl3D extension.

Demo:	GL_Primitives
Туре:	GameProgrammer
Category:	TutorialsAndBooks
Root:	Contents
🚻 Tcl3D demo: GameProgrammer.	org Tutorial GL_Primitives
	GameProgrammer 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
Key-Escape Exit Running on Windows NT with a GeFord	te FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
GL_Primitives.tcl	
Tutorial from www.GameProgr OpenGL Primitives.	ammer.org
Original code Copyright 200	4 by Vahid Kazemi
Modified for Tcl3D by Paul See www.tcl3d.org for the T	

Demo:	GL_Shadow
Туре:	GameProgrammer
Category:	TutorialsAndBooks
Root:	Contents
Root: TcI3D demo: GameProgrammer	
Key-Escape Exit Key-Up Down Increase Decre Mouse-1 2 Start Stop ani Running on Windows NT with a GeFo	
GL Shadow.tcl	
- Tutorial from www.GameProg Stencil shadows.	rammer.org
Original code Copyright 20	05 by Vahid Kazemi
Modified for Tcl3D by Paul See www.tcl3d.org for the	

Demo:	GL_Texturing
Туре:	GameProgrammer
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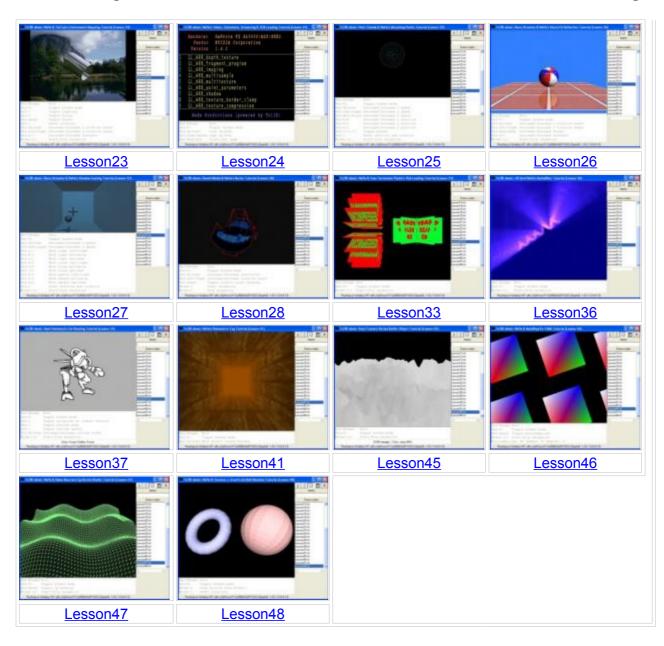
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lessons are available.			-	
Original sources availab	le at: <u>http://nehe.gamede</u>			
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Tcl3D: Doing 3D with Tcl

www.tcl3d.org

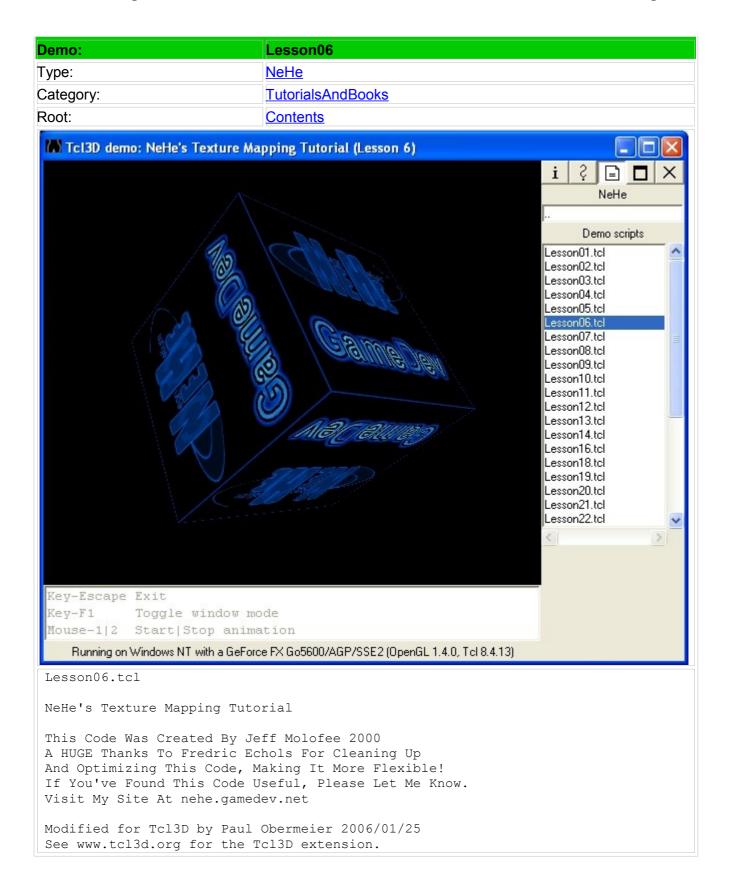


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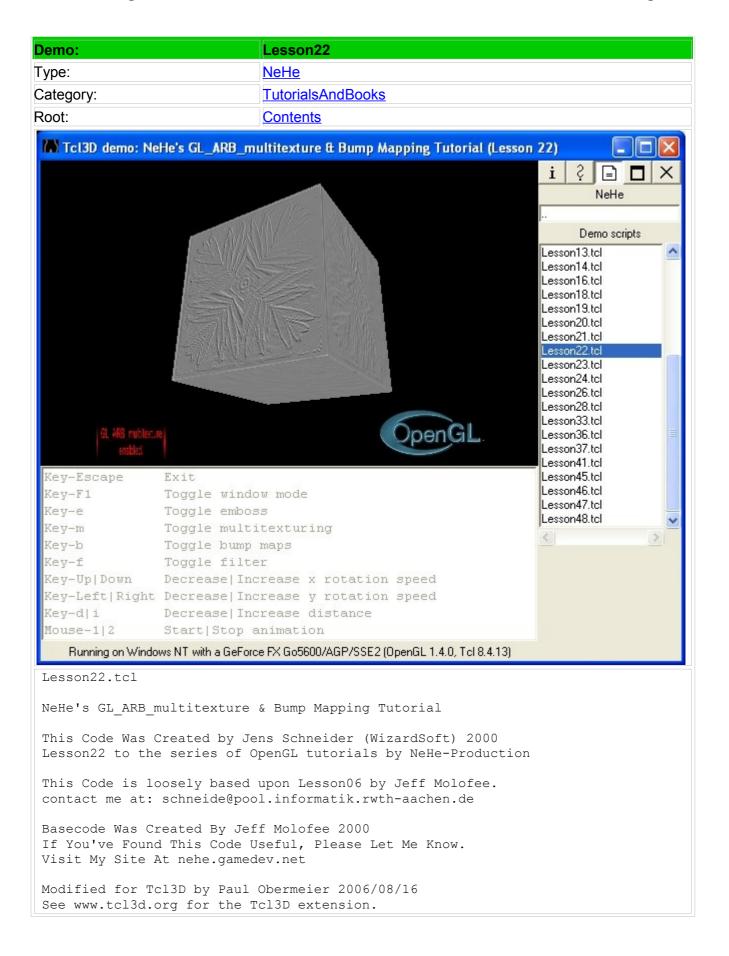
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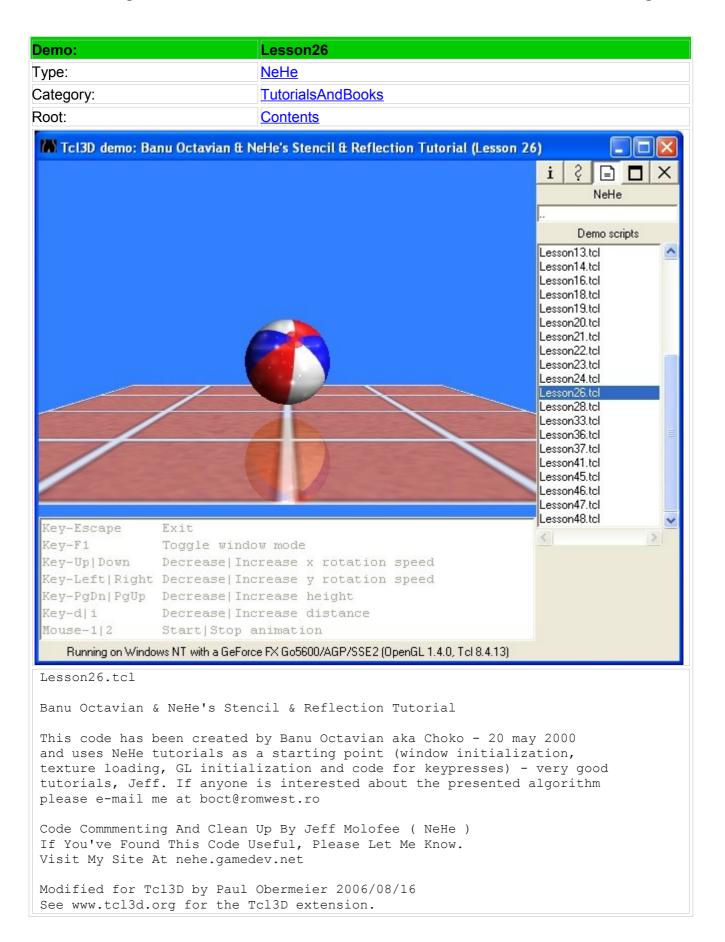
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Туре:	NeHe		
Category:	TutorialsAndBooks		
Root:	Contents		
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Lesson21.tcl			
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This Code Was Created By Jeff Molofee 2000			
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Modified for Tcl3D by Paul			
See www.tcl3d.org for the T	CL3D extension.		



Demo:	Lesson23	
Гуре:	<u>NeHe</u>	
Category:	TutorialsAndBooks	
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C Tcl3D demo: Ne	He & TipTup's Environment Mapping Tutorial (Less	ion 23) 📃 🗖 🔛
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	13D by Paul Obermeier 2006/08/27 org for the Tcl3D extension.	

Demo:	Lesson24	
Туре:	<u>NeHe</u>	
Category:	TutorialsAndBooks	
Root:	Contents	
🕅 Tcl3D demo: NeHe's Token, Exte	ensions, Scissoring & TGA Loading Tutorial (Lesson 24)
Vendor NVIDIA Version 1.4.0 1 GL_ARB_depth_tex 2 GL_ARB_fragment_ 3 GL_ARB_imaging 4 GL_ARB_multisamp 5 GL_ARB_multisamp 5 GL_ARB_multitext 6 GL_ARB_multitext 6 GL_ARB_point_par 7 GL_ARB_shadow 8 GL_ARB_texture_b 9 GL_ARB_texture_b 9 GL_ARB_texture_c NeHe Production Key-Escape Exit Key-F1 Toggle wind Key-PgUp PgDown Line up dow Key-Home End First last	program le ure ameters order_clamp ompression as (powered by Tcl3D) dow mode m	i ? Pemo scripts Pemo scripts Lesson13.tcl Lesson14.tcl Lesson14.tcl Lesson16.tcl Lesson19.tcl Lesson20.tcl Lesson20.tcl Lesson22.tcl Lesson23.tcl Lesson28.tcl Lesson38.tcl Lesson36.tcl Lesson37.tcl Lesson45.tcl Lesson48.tcl
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Modified for Tcl3D by Paul See www.tcl3d.org for the T	Obermeier 2006/08/25	

Demo:	Les	sson25	
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			Lesson26.tcl Lesson27.tcl
Key-Escape	Exit		Lesson28.tcl
Key-F1	Toggle window m	ode	Lesson33.tcl
Key-Up Down	Decrease Increa		Lesson36.tcl Lesson37.tcl
	Decrease Increa		Lesson41.tcl
	Decrease Increa		
Key-a d Key-s w	Decrease Increa Decrease Increa		
Key-q z	Decrease Increa		
Key-1 2 3 4	Toggle morphs	ee a poproron	
Key-r	Reset position	and rotation	
Mouse-1 2	Start Stop anim		
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			
	cl3D by Paul Obe org for the Tcl3	rmeier 2007/03/03 D extension.	



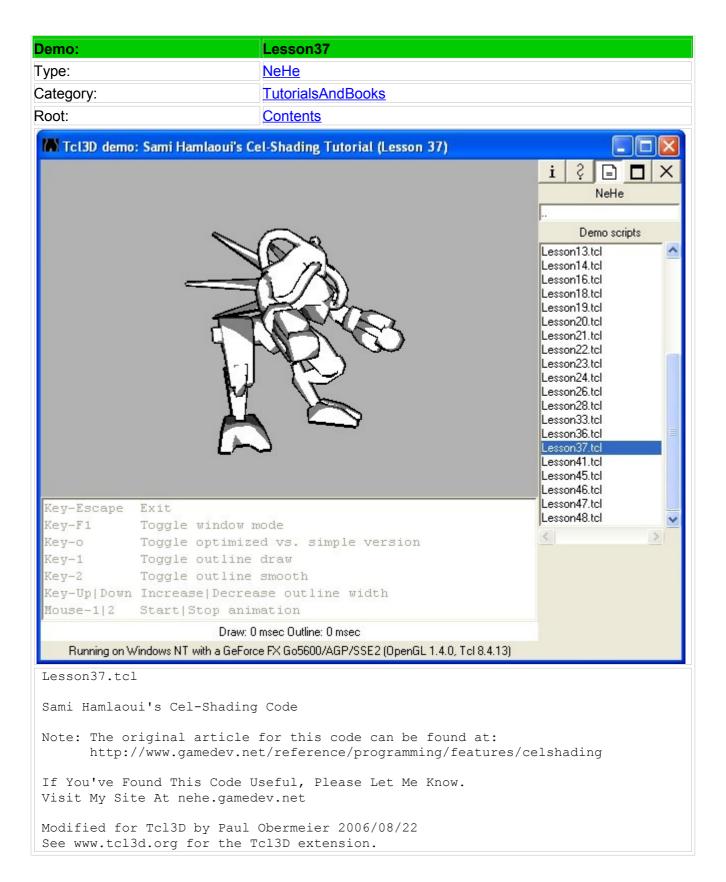
Demo:	Lesson27	
Туре:	NeHe	
Category:	TutorialsAndBooks	
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Key-F1	Toggle window mode	Lesson28.tcl
Key-Up Down	Decrease Increase x speed	Lesson33.tcl
Key-Left Right	Decrease Increase y speed	Lesson36.tcl
Key-j l	Move light left right	Lesson41.tcl
Key-k i	Move light bottom up	Lesson45.tcl Lesson46.tcl
Key-u o	Move light far near	Lesson40.tcl
Key-4 6 Key-5 8	Move cross left right Move cross bottom up	Lesson48.tcl 🔽
Key-7 9	Move cross far near	
Key-a d	Nove sphere left right	
Key-s w	Nove sphere bottom up	
Key-q e	Move sphere far near	
Key-r	Reset position and rotation	
Mouse-1 2	Start Stop animation	
Running on Windo	ws 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 and has h	poor greated by Pary Octavian aka Cheke - 20 m	2000
	been created by Banu Octavian aka Choko – 20 m cutorials as a starting point (window initiali	
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!!! Th	his code is not for beginners.	
Modified for To	cl3D by Paul Obermeier 2007/02/27	

See www.tcl3d.org for the Tcl3D extension.

Demo:	Lesson28	
Туре:	NeHe	
Category:	TutorialsAndBooks	
Root:	<u>Contents</u>	
Tcl3D demo: Da	vid Nikdel & NeHe's Bezier Tutorial (Lesson 28)	
		i ? Permo scripts Lesson13.tcl Lesson14.tcl Lesson14.tcl Lesson16.tcl Lesson18.tcl Lesson20.tcl Lesson20.tcl Lesson21.tcl Lesson22.tcl Lesson23.tcl Lesson24.tcl Lesson26.tcl Lesson36.tcl Lesson36.tcl Lesson37.tcl Lesson45.tcl Lesson46.tcl Lesson48.tcl
Key-Escape Key-F1	Exit Toggle window mode	<u><</u>
Key-Up Down	Increase Decrease resolution	
	Increase Decrease rotation angle	
Key-space Mouse-1	Toggle control point drawing Start animation	
Mouse-2	Start animation Stop animation	
Running on Windo	ws NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)	
Lesson28.tcl		
David Nikdel & NeHe's Bezier Tutorial		
Code Was Create If You've Found	Published By Jeff Molofee 2000 ed By David Nikdel For NeHe Productions d This Code Useful, Please Let Me Know. At nehe.gamedev.net	
	cl3D by Paul Obermeier 2006/08/29 org for the Tcl3D extension.	

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<pre>Key-Escape Exit Key-F1 Toggle window mode House-1 2 Start Stop animation Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13) Lesson33.tcl NeHe & Evan 'terminate' Pipho's TGA Loading Tutorial Loading Uncompressed and Compressed .TGA Files with the Img extension. This Code Was Created By Evan Pipho 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.</pre>				

Demo:	Lesson36	
Туре:	NeHe	
Category:	TutorialsAndBooks	
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Lesson36.tcl		
Dario Corno's Radial Blur &	Rendering To A Texture Tutorial	
If You've Found This Code U Visit My Site At nehe.gamed		
Modified for Tcl3D by Paul See www.tcl3d.org for the I		



Demo:	Lesson41	
Туре:	<u>NeHe</u>	
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If You've Found Th Visit My Site At n	is Code Useful, Please Let Me Know. ehe.gamedev.net	
	by Paul Obermeier 2006/08/27 for the Tcl3D extension.	

Demo:	Lesson45		
Туре:	<u>NeHe</u>		
Category:	TutorialsAndBooks		
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	Paul Frazee's Vertex Buffer Object Tutorial (Lesson 45)	i ? Pemo scripts Demo scripts Lesson11.tcl Lesson12.tcl Lesson12.tcl Lesson13.tcl Lesson14.tcl Lesson14.tcl Lesson14.tcl Lesson14.tcl Lesson20.tcl Lesson20.tcl Lesson21.tcl Lesson21.tcl Lesson21.tcl Lesson21.tcl Lesson24.tcl Lesson24.tcl Lesson26.tcl Lesson3.tcl Lesson3.tcl Lesson3.tcl Lesson3.tcl Lesson3.tcl Lesson3.tcl Lesson3.tcl Lesson3.tcl Lesson46.tcl	
Key-Escape Key-F1	Exit 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 Commmenting And Clean Up By Jeff Molofee (NeHe) If You've Found This Code Useful, Please Let Me Know.			
Modified for	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
Туре:	<u>NeHe</u>
Category:	TutorialsAndBooks
Root:	<u>Contents</u>
Root:	
Key-Escape Exit Key-F1 Toggle window mo Key-Space Toggle multisamp Mouse-1 2 Start Stop anima Multisampling: ON (Number o Running on Windows NT with a GeForce Lesson46.tcl	ling tion
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Demo:	Lesson47
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Key-Escape Exit Key-F1 Toggle window mode Jouse-112 Start Stop animal Running on Windows NT with a GeFord Lesson47.tcl	g tion e FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
NeHe & Owen Bourne's Cg Ver	tex Shader Tutorial
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Modified for Tcl3D by Paul See www.tcl3d.org for the T	

Demo:	Lesson48
Туре:	NeHe
Category:	TutorialsAndBooks
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	r Tcl3D by Paul Obermeier 2006/08/31 3d.org for the Tcl3D extension.

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Category:	TutorialsAndBooks		
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Example02	Example03	Example04	Example05

Demo:	Example02
Туре:	Nopper
Category:	TutorialsAndBooks
Root:	Contents
Tcl3D demo: Nopper's OpenGL 3.3 and 4.0	tutorials (Example 02)
i ? E X Normal Safe Debug Nopper Demo scripts Example02.tcl Example04.tcl Example05.tcl Key-Escape Exit Running on Windows	NT 6.1 with a ATI Radeon HD 5800 Series (OpenGL 3.3.10151 Core Profile Context, Tcl 8.5.8)
@author Norbert Nopper nor	rbert@nopper.tv
@version 1.0	
Homepage: http://nopper.tv	
Copyright Norbert Nopper	
Modified for Tcl3D by Paul (See www.tcl3d.org for the Tc	

Demo:	Example03	
Туре:	Nopper	
Category:	TutorialsAndBooks	
Root:	Contents	
Tcl3D demo: Nopper's OpenGL 3.3 and 4.0	tutorials (Example 03)	
i ? Debug Nopper Demo scripts Example02.tcl Example03.tcl Example05.tcl Key-Escape Exit Running on Windows	NT 6.1 with a ATI Radeon HD 5800 Series (OpenGL 3.3.10151 Core Profile Context, Tcl 8.5.8)	
OpenGL 3.3 with GLEW - Exam	ple 03	
@author Norbert Nopper no @version 1.0	rbert@nopper.tv	
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Copyright Norbert Nopper		
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Demo:	Example04
Туре:	Nopper
Category:	TutorialsAndBooks
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Demo:	Example05	
Туре:	Nopper	
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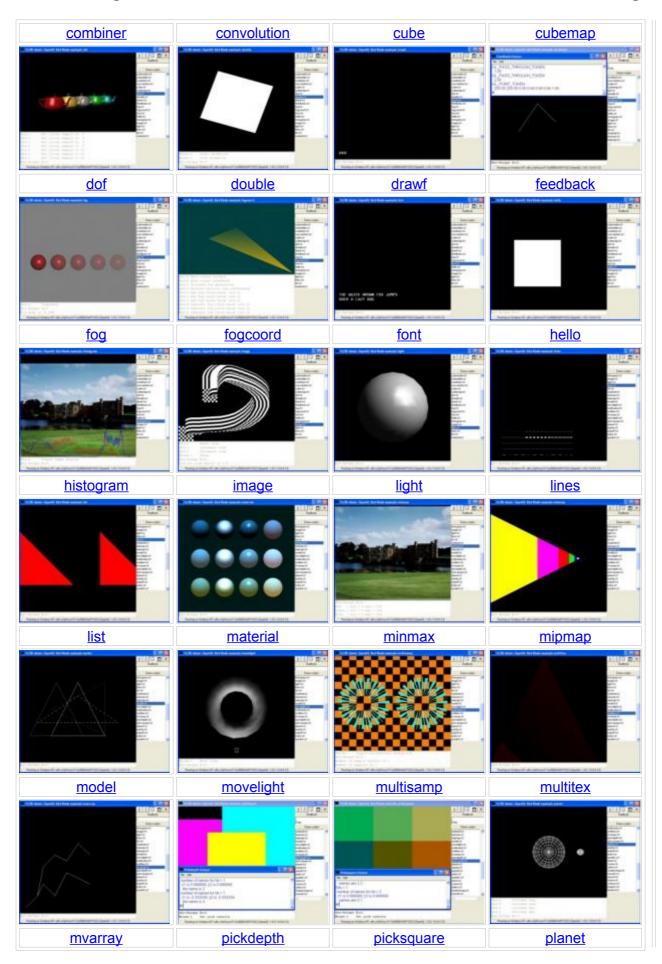
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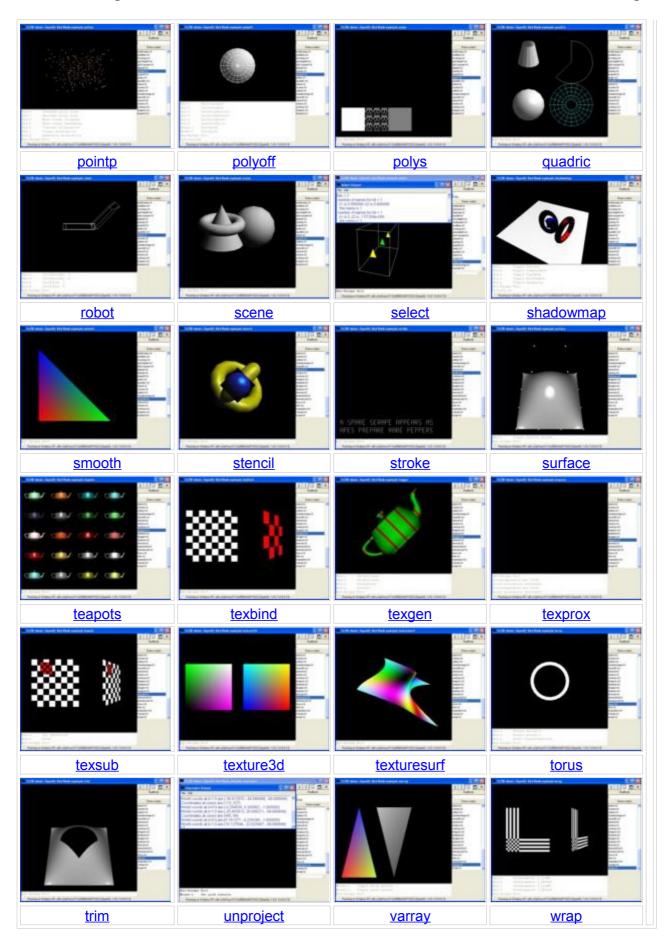
www.tcl3d.org



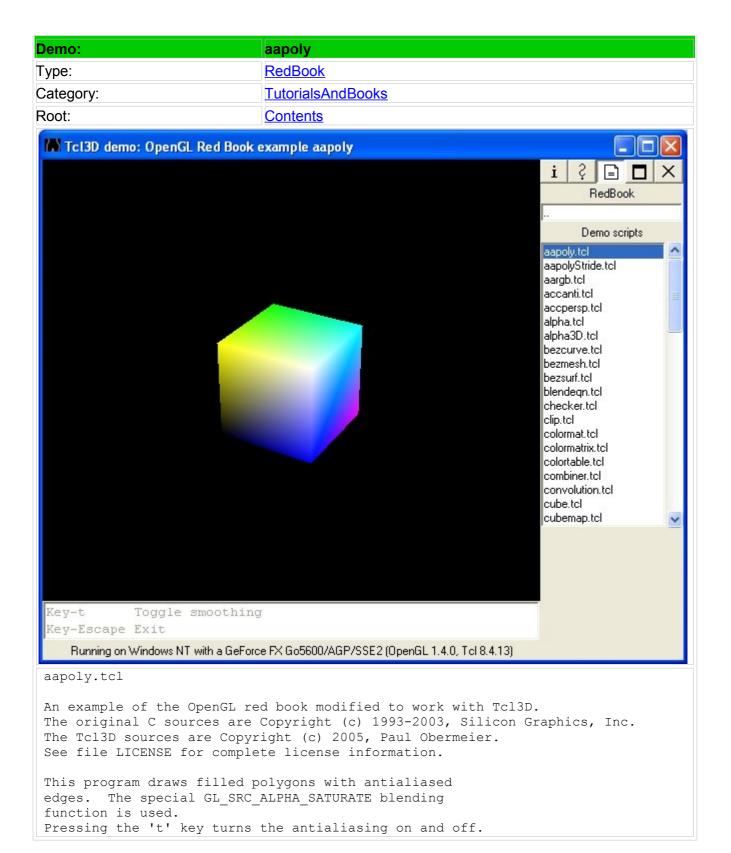
Tcl3D demos at a glanceVersion 0.5.0, December 2010Page 157 of 266Copyright © 2005-2010 by Paul Obermeier. All rights reserved.

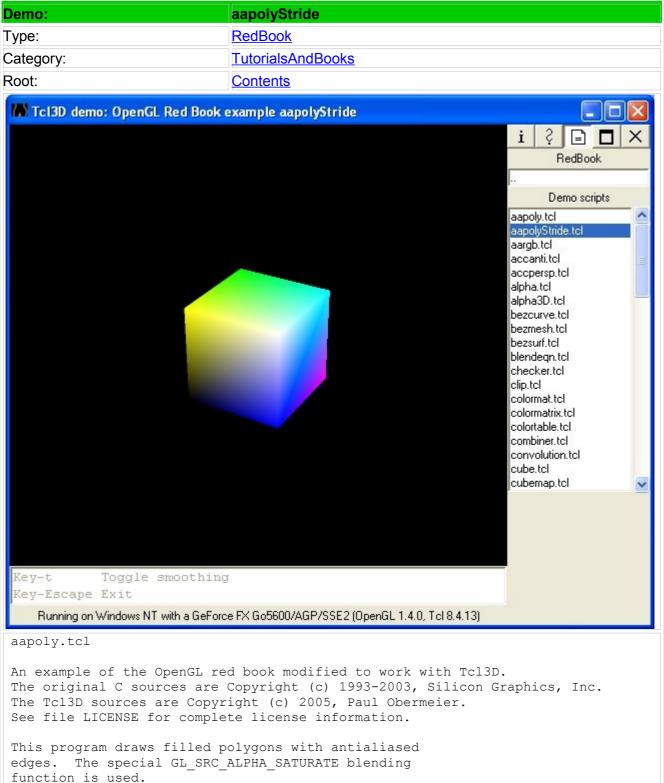
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Pressing the 't' key turns the antialiasing on and off.

Demo:	aargb
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
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	e FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
The original C sources are (d book modified to work with Tcl3D. Copyright (c) 1993-2003, Silicon Graphics, Inc. ight (c) 2005, Paul Obermeier. te license information.

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
Туре:	RedBook
Category:	TutorialsAndBooks
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See file LICENSE for comple	LE IICENSE INIOIMALION.
Use the accumulation buffer	to do full-scene antialiasing

on a scene with orthographic parallel projection.

Demo:	accpersp	
Туре:	RedBook	
Category:	TutorialsAndBooks	
Root:	Contents	
accpersp.tcl	i C RedBook	
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.		
	to do full-scene antialiasing	

on a scene with perspective projection, using the special $% \left({{{\left({{{{\left({{{c}} \right)}}} \right)}}} \right)$

routines accFrustum() and accPerspective().

Demo:	alpha
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	<u>Contents</u>
Key-t Toggle polygon or Key-Escape Exit	xample alpha
alpha.tcl	
The original C sources are (

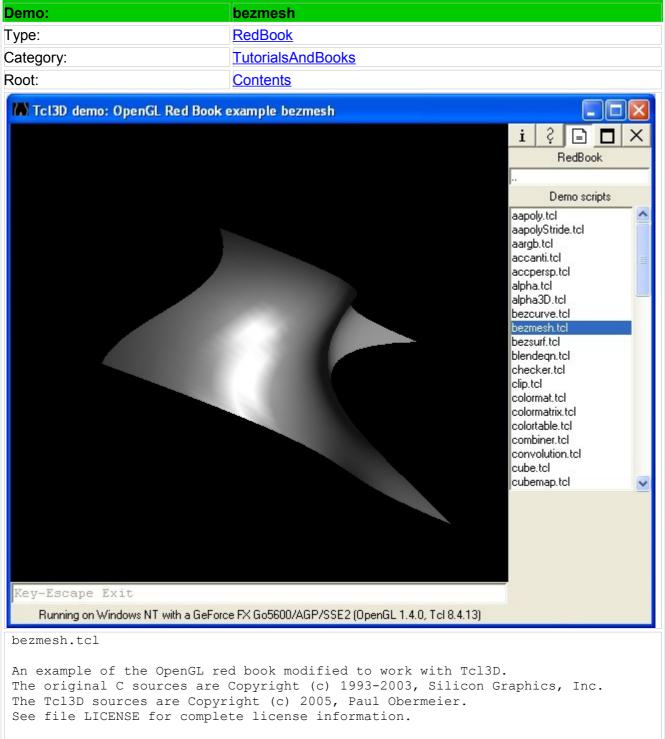
to demonstrate the effect order has on alpha blending results.

Use the 't' key to toggle the order of drawing polygons.

the 'r' key to reset the scene.

Demo:	alpha3D		
Туре:	RedBook		
Category:	TutorialsAndBooks		
Root:	Contents		
Root: Tcl3D demo: OpenGL Red Boo			
Key-a Start animatio 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. 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.			
alpha blended polygons in	' key to animate moving the		

Demo:	bezcurve
Туре:	RedBook
Category:	TutorialsAndBooks
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bezcurve.tcl	
An example of the OpenGL re The original C sources are	



This program renders a lighted, filled Bezier surface, using two-dimensional evaluators.

Demo:	bezsurf
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
	Contents
Key-Escape Exit Running on Windows NT with a GeForc	e FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
bezsurf.tcl	
The original C sources are	

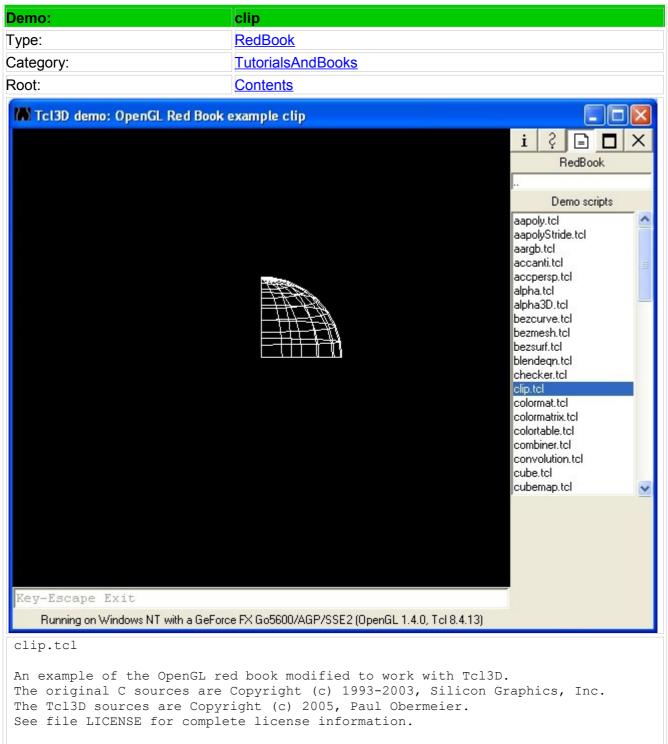
using two-dimensional evaluators.

Demo:	blendeqn		
Туре:	RedBook		
Category:	TutorialsAndBooks		
Root:	Contents		
T-I2D damas One -Cl. Ded Bash			
Key-a GL_FUNC_ADD Key-s GL_FUNC_SUBTRACT Key-r GL_FUNC_REVERSE Key-m GL_MIN Key-x GL_MAX Key-Escape Exit blue square on yellow backg	i ? RedBook		
Running on Windows NT with a GeForc	e FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)		
<pre>blendeqn.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. 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</pre>			

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 Copyright © 2005-2010 by Paul Obermeier. All rights reserved.

Demo:	checker		
Туре:	RedBook		
Category:	TutorialsAndBooks		
Root:	<u>Contents</u>		
Key-Escape Exit	example checker		
Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)			
<pre>checker.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. If running this program on OpenGL 1.0, texture objects are not used.</pre>			



This program demonstrates arbitrary clipping planes.

Demo:	C	colormat
Туре:	F	RedBook
Category:		TutorialsAndBooks
Root:	C	Contents
Mouse-3 Change 1 Key-Escape Exit	red diff green diff blue diff	i ? RedBook
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.		

After initialization, the program will be in ColorMaterial mode. Interaction: pressing the mouse buttons will change the diffuse reflection values.

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Demo:	colormatrix		
Туре:	RedBook		
Category:	TutorialsAndBooks		
Root:	<u>Contents</u>		
Tcl3D demo: OpenGL Red Bo	ok example colormatrix		
Key-Escape Exit	Force FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)	i ? RedBook Demo scripts aapoly.tcl aapolyStride.tcl aargb.tcl accanti.tcl accpersp.tcl alpha.tcl alpha3D.tcl bezcurve.tcl bezresh.tcl bezeurve.tcl bezeurve.tcl bezeurve.tcl colormatix.tcl colormatix.tcl colormatix.tcl convolution.tcl cubemap.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 uses the color matrix to exchange the color channels of an image.			
Red -> Green Green -> Blue Blue -> Red			

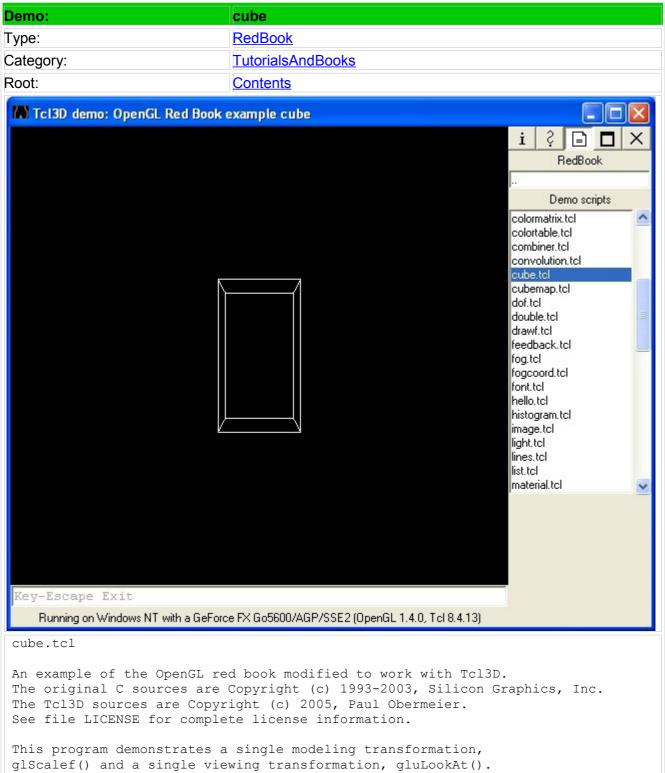
use of the glColorTable() function.

Demo:	colortable	
Туре:	RedBook	
Category:	TutorialsAndBooks	
Root:	Contents	
Key-Escape Exit Running on Windows NT with a GeFore	example colortable	
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.		
The Tcl3D sources are Copyr See file LICENSE for comple		
Invert a passed block of pi	xels. This program illustrates the	

Demo:	combiner	
Туре:	RedBook	
Category:	TutorialsAndBooks	
Root:	<u>Contents</u>	
Root:		i ? Pemo scripts aapoly.tcl aapolyStride.tcl aargb.tcl accanti.tcl accersp.tcl alpha.tcl alpha3D.tcl bezcurve.tcl bezmesh.tcl bezmesh.tcl bezwesh.tcl bezwesh.tcl bezwesh.tcl bezwesh.tcl bezwesh.tcl colormat.tcl
combiner.tcl An example of the OpenGL red The original C sources are 0	e FX Go5600/AGP/SSE2(OpenGL 1.4.0, Tcl 8.4.13) d book modified to work with Tcl3D. Copyright (c) 1993-2003, Silicon Gr ight (c) 2005, Paul Obermeier. te license information.	
effects of texture combiner The first row renders an un compare the fragment colors The second row shows several on a single texture: replace and subtract. The third row shows the inter on a single texture with a varying the amount of interp The fourth row uses multited and different combiner function	textured polygon (so you can) and then the 2 textures. 1 different combiner functions ce, modulate, add, add-signed, erpolate combiner function constant color/alpha value, polation. xturing with two textures tions. iner experiments: using the	
Tcl3D demos at a glance Ve		Page 175 of 266

for a combination function.

Demo:	convolution	
Туре:	RedBook	
Category:	TutorialsAndBooks	
Root:	Contents	
Root:	example convolution	
	histogram.tcl image.tcl light.tcl lines.tcl list.tcl	
Key-h Horizontal filter Key-v Vertical filter Key-l Laplacian filter Using the horizontal filter Running on Windows NT with a GeForce	e 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. 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.		



A wireframe cube is rendered.

Demo:	cubemap	
Туре:	RedBook	
Category:	TutorialsAndBooks	
Root:	Contents	
TcI3D demo: OpenGL Red Book of	example cubemap	
Key-f Move object forw Key-b Move object back		
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. 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 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.

Demo:	dof	
Туре:	RedBook	
Category:	TutorialsAndBooks	
Root:	<u>Contents</u>	
Tc13D demo: OpenGL Red Book example dof		
Key-1 Set j: Key-2 Set j: Key-3 Set j: Key-4 Set j: Key-5 Set j: Key-6 Set j:	itter sample to 2 itter sample to 3 itter sample to 4 itter sample to 8 itter sample to 15 itter sample to 24 itter sample to 24 itter sample to 66	i ? FredBook RedBook Demo scripts Colormatrix.tcl colortable.tcl combiner.tcl convolution.tcl cuber.tcl doi.tcl double.tcl drawf.tcl feedback.tcl fogcoord.tcl fogcoord.tcl font.tcl histogram.tcl image.tcl light.tcl list.tcl material.tcl
Running on Windows NT with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)		
The original C so The Tcl3D sources See file LICENSE This program demo create an out-of- are drawn several viewing volume is	e OpenGL red book modified to work wi burces are Copyright (c) 1993-2003, S s are Copyright (c) 2005, Paul Oberme for complete license information. Donstrates use of the accumulation buf -focus depth-of-field effect. The te l times into the accumulation buffer. s jittered, except at the focal point me is at the same position, each time	Silicon Graphics, Inc. eier. ffer to eapots . The c, where

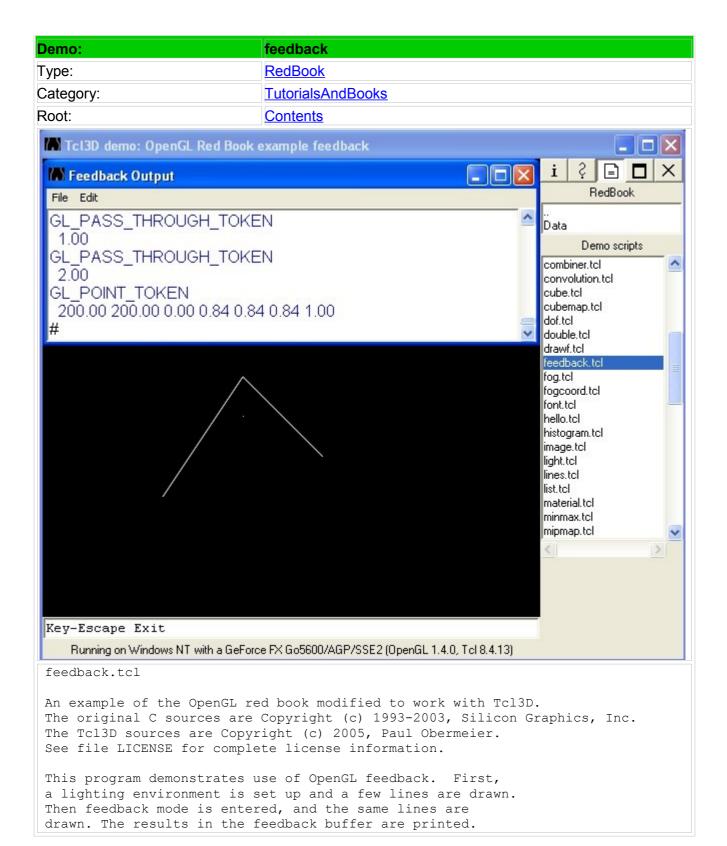
Tcl3D demos at a glanceVersion 0.5.0, December 2010Page 180 of 266Copyright © 2005-2010 by Paul Obermeier. All rights reserved.

this case, the gold teapot remains in focus.

Demo:	double	
Туре:	RedBook	
Category:	TutorialsAndBooks	
Root:	<u>Contents</u>	
Tcl3D demo: OpenGL Red Book of	example double	
Mouse-1 Start animation Mouse-2 Stop animation Key-Escape Exit Running on Windows NT with a GeFord double.tcl	i ? PedBook PedBook PedBook PedBook Permo scripts colormatrix.tcl convolution.tcl convolution.tcl cubemap.tcl double.tcl drawf.tcl feedback.tcl fog.cord.tcl fog.cord.tcl fog.cord.tcl ifog.tcl bistogram.tcl limage.tcl limage.tcl limage.tcl limaterial.tcl FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)	
	d book modified to work with Talan	
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 a simple double buffered program. Pressing the left mouse button rotates the rectangle. Pressing the middle mouse button stops the rotation.

Demo:	drawf
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
Category: Root: Tcl3D demo: OpenGL Red Boo FFF FFF Key-Escape Exit Running on Windows NT with a GeF	TutorialsAndBooks Contents
The original C sources are The Tcl3D sources are Copy See file LICENSE for comp	r F on the screen (several times).



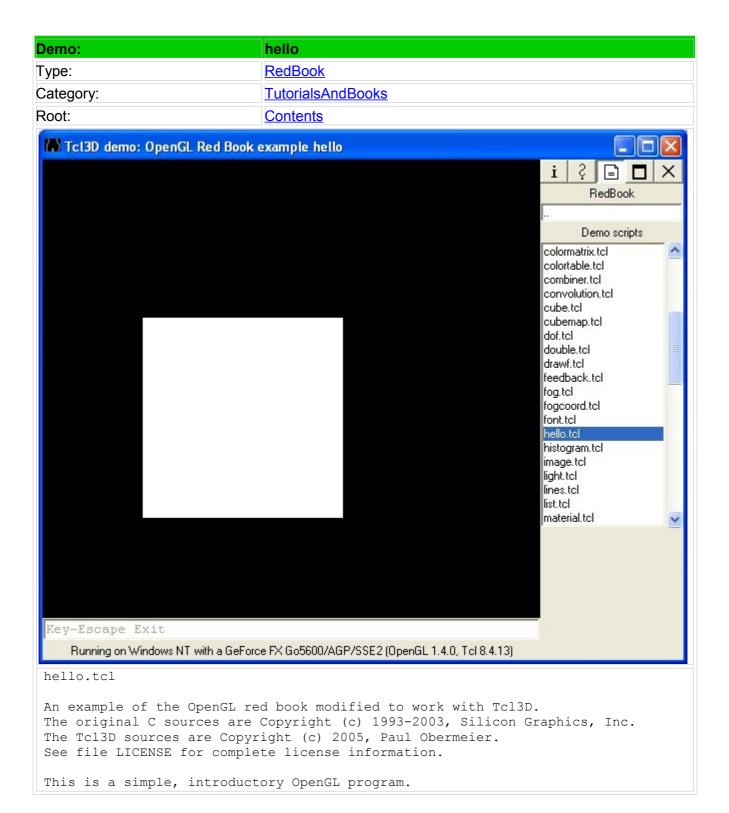
Demo:	fog	
Туре:	RedBook	
Category:	TutorialsAndBooks	
Root:	Contents	
Tcl3D demo: OpenGL Red Book		PedBook PedBook PedBook PedBook Perend Scripts Colormatrix.tcl colortable.tcl combiner.tcl convolution.tcl cube.tcl cubemap.tcl dof.tcl double.tcl double.tcl double.tcl feedback.tcl fogcoord.tcl fogcoord.tcl fogcoord.tcl fogtorm.tcl image.tcl light.tcl light.tcl list.tcl material.tcl vertice
Key-f ToggleFog Key-Escape Exit		
Fog mode is GL_EXP		
Running on Windows NT with a GeFord	e FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)	
fog.tcl		
The original C sources are	ed book modified to work with Tcl3D Copyright (c) 1993-2003, Silicon G right (c) 2005, Paul Obermeier. ete license information.	
	different types of fog.	

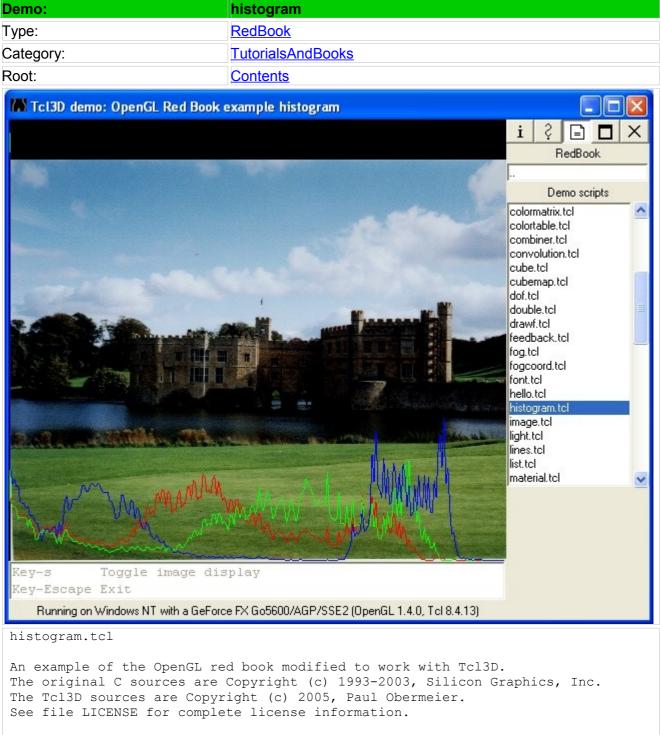
In this program, there is a fixed density value, as well as fixed start and end values for the linear fog.

Demo:	fogcoord	
Туре:	RedBook	
Category:	TutorialsAndBooks	
Root:	Contents	
TcI3D demo: OpenGL Red Book example fogcoord		
		i ? RedBook RedBook Colormatrix.tcl colormatrix.tcl colortable.tcl combiner.tcl combiner.tcl convolution.tcl cube.tcl cubemap.tcl dof.tcl double.tcl dof.tcl double.tcl feedback.tcl fog
Key-f Move viewer forward Key-b Move viewer backwards Key-c Initiate fog generati Key-C Restore explicit fog Key-1 Add fog coord value (Key-2 Add fog coord value (Key-3 Add fog coord value (Key-8 Subtract fog coord va Key-9 Subtract fog coord va Key-0 Subtract fog coord va	on coordinates vtx 1) vtx 2) vtx 3) lue (vtx 1) lue (vtx 2)	image.tcl light.tcl lines.tcl list.tcl material.tcl
fogcoord.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 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.		

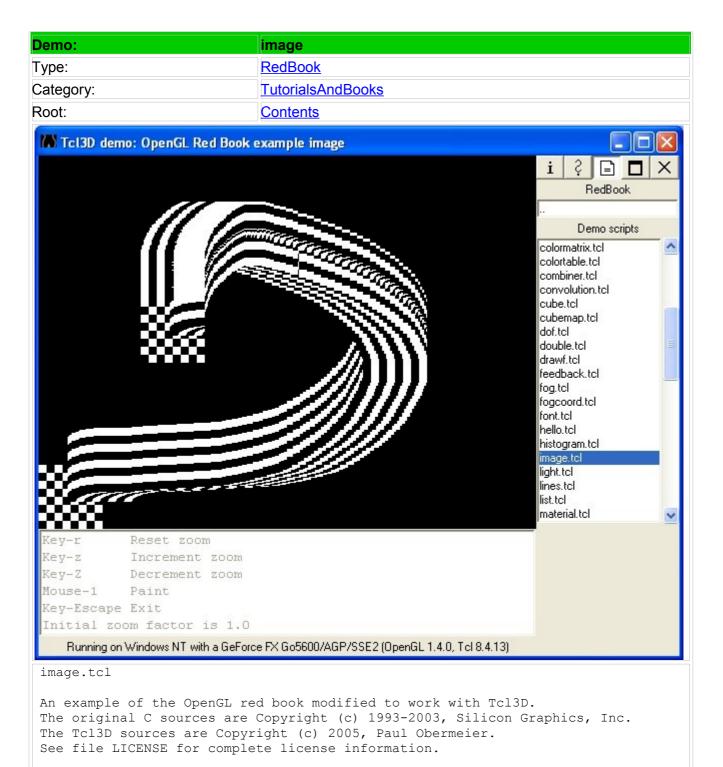
Demo:	font
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	<u>Contents</u>
Root: Tcl3D demo: OpenGL Red Book e THE QUICK BROWN FOX A OVER A LAZY DOG Key-Escape Exit	contents xample font i </td RedBook Demo scripts colornatix.tcl colornatix.tcl convolution.tcl convolution.tcl cube.tcl dot.tcl double.tcl drawf.tcl feedback.tcl fog.tcl light.tcl limes.tcl list.tcl material.tcl
font.tcl	
The original C sources are C	ped font. Uses glBitmap()

display lists.





Compute the histogram of the image. This program illustrates the use of the glHistogram() function.



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
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
Root: Tcl3D demo: OpenGL Red Book of Key-Escape Exit Running on Windows NT with a GeFord light.tcl	Contents example light
The original C sources are The Tcl3D sources are Copyr See file LICENSE for comple This program demonstrates t	d book modified to work with Tcl3D. Copyright (c) 1993-2003, Silicon Graphics, Inc. ight (c) 2005, Paul Obermeier. te license information. he use of the OpenGL lighting ing a grey material characteristic.

A single light source illuminates the object.

Demo:	lines
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
	xample lines
Key-Escape Exit	
	e FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
lines.tcl	
The original C sources are (

Demo:	list
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
Key-Escape Exit	
list.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 how to make and execute a display list. Note that attributes, such as current	

color and matrix, are changed.

Tcl3D: Doing 3D with Tcl

Demo:	material
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
Tcl3D demo: OpenGL Red Book	example material
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 t	he use of the GL lighting model

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
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
-	x = 232 x = 232 x = 232
	with a GeForce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
The original C so The Tcl3D sources See file LICENSE Determine the min	penGL red book modified to work with Tcl3D. ces are Copyright (c) 1993-2003, Silicon Graphics, Inc. re Copyright (c) 2005, Paul Obermeier. r complete license information. num and maximum values of a group of pixels. se of the glMinmax() call

This demonstrates use of the glMinmax() call.

different colors.

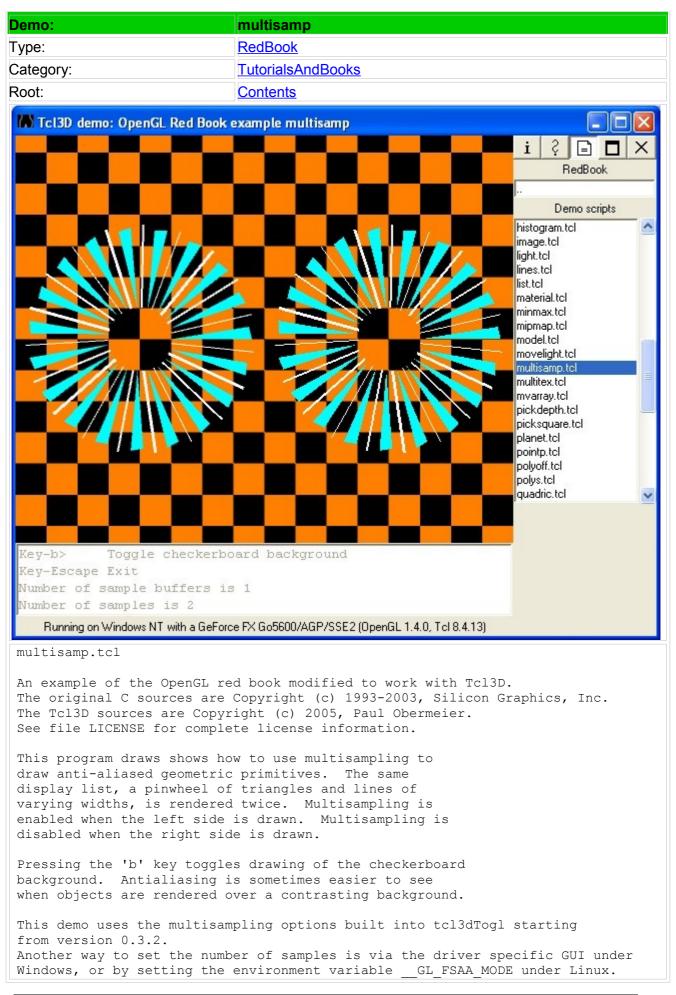
Demo:	тіртар
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
Key-Escape Exit Running on Windows NT with a GeFord mipmap.tcl An example of the OpenGL re	e FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
The original C sources are	Copyright (c) 1993-2003, Silicon Graphics, Inc. ight (c) 2005, Paul Obermeier.
To overtly show the effect level has a solidly colored	sing mipmaps for texture maps. of mipmaps, each mipmap reduction , contrasting texture image. ch is drawn is drawn with several

Demo:	model
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	<u>Contents</u>
Key-Escape Exit	
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 modeling transformations

Demo:	movelight		
Туре:	RedBook		
Category:	TutorialsAndBooks		
Root:	Contents		
Tcl3D demo: OpenGL Red Book e	xample movelight		
Nouse-1 Move light Key-Escape Exit	i i RedBook Demo scripts histogram.tcl image.tcl light.tcl minmax.tcl minmax.tcl minmax.tcl model.tcl movelight.tcl multisamp.tcl multisamp.tcl multisamp.tcl pickdepth.tcl picksquare.tcl planet.tcl pointp.tcl pointp.tcl quadric.tcl		
movelight.tcl			
<pre>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 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.</pre>			

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Demo:	multitex
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
M Tc13D demo: OpenGL Red Book e	example multitex
Key-Escape Exit Running on Windows NT with a GeForce	i ? The RedBook Provide the test of the test of the test of the test of test
The original C sources are (d book modified to work with Tcl3D. Copyright (c) 1993-2003, Silicon Graphics, Inc. ight (c) 2005, Paul Obermeier. te license information.

Demo:	mvarray
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
Category:	TutorialsAndBooks Contents
Key-Escape Exit Running on Windows NT with a GeFord	e FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
mvarray.tcl	
An example of the OpenGL re The original C sources are	d book modified to work with Tcl3D. Copyright (c) 1993-2003, Silicon Graphics, Inc. ight (c) 2005, Paul Obermeier. te license information.
This program demonstrates m specifically the OpenGL rou	

Demo:	pickdepth	
Туре:	RedBook	
Category:	TutorialsAndBooks	
Root:	Contents	
★ Tcl3D demo: OpenGL Red Book ★ Tcl3D demo: OpenGL Red Book ★ Pickdepth Output File Edit number of names for hit = 1 z1 is 0.999999; z2 is 0.99999; the name is 2 number of names for hit = 1 z1 is -0.333334; z2 is -0.3333; the name is 3 # Key-Escape Exit Mouse-1 Get pick results Running on Windows NT with a GeFore pickdepth.tcl	99 334	i ? RedBook Data Demo scripts 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 polyoff.tcl scene.tcl select.tcl shadowmap.tcl smooth.tcl
pickdepth.tcl		
The original C sources are The Tcl3D sources are Copyr See file LICENSE for comple Picking is demonstrated in rendering mode, three over1	this program. In apping rectangles are button is pressed, with the picking matrix. under the cursor position attention to the depth	

Demo:	picksquare
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
Root: Tcl3D demo: OpenGL Red Book	
Picksquare Output File Edit names are 2 2 hits = 1 number of names for hit = 2 z1 is 0.999999; z2 is 0.99999 names are 0 1 # Key-Escape Exit Mouse-1 Get nick result	99
Mouse-1 Get pick result:	
picksquare.tcl	ce FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
An example of the OpenGL re The original C sources are The Tcl3D sources are Copy See file LICENSE for comple Use of multiple names and p A 3x3 grid of squares is di	picking are demonstrated.

Demo:		planet		
Туре:		RedBook		
Category:		TutorialsAndBooks		
Root:		Contents		
Tel3D	demo: OpenGL Red Bool			
				i ? PedBook Demo scripts multisamp.tcl multitex.tcl mvarray.tcl pickdepth.tcl picksquare.tcl planet.tcl polyoff.tcl polys.tcl quadric.tcl robot.tcl scene.tcl select.tcl shadowmap.tcl smooth.tcl stroke.tcl surface.tcl teapots.tcl texbind.tcl
Key-y	Increase year			-
Key-Y	Decrease year			
Key-d Key-D	Increase day			
Key-D Kev-Esca	Decrease day ape Exit			
	g on Windows NT with a GeFo	rce EX Go5600/AGP/SSE2	(OpenGL 140 Tel 8413)	
planet.t An examp	ccl ble of the OpenGL r	ed book modified	to work with Tcl3.	
The Tcl3 See file	ginal C sources are BD sources are Copy E LICENSE for compl ogram shows how to	right (c) 2005, E ete license infor	Paul Obermeier. Mation.	fraphics, inc.
to draw	translated and rot	ated models.		

alters the rotation of the planet around the sun.

Demo:	pointp				
Туре:	RedBook				
Category:	TutorialsAndBooks				
Root:	Contents				
Key-+ Increase point s Key Decrease point s Key Decrease point s Key-f Move viewer forw Key-b Move viewer back Key-c Constant attenuati	ize ize ards wards tion	i ? I NeedBook			
Key-q Quadratic attenu					
Key-Escape Exit					
Running on Windows NT with a GeForc	e 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. 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 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					

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will not get less than 2.0, nor greater than GL_POINT_SIZE_MAX.

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Demo:		polyoff	
Туре:		RedBook	
Category:		TutorialsAndBooks	
Root:		Contents	
(marked and the second			
Key-t Key-T Kev-f	DecrDistance IncrDistance DecrPolyFactors	example polyoff	i ? RedBook . Demo scripts multisamp.tcl multitex.tcl mvarray.tcl pickdepth.tcl picksquare.tcl planet.tcl polyoff.tcl polyoff.tcl polys.tcl quadric.tcl robot.tcl scene.tcl select.tcl shadowmap.tcl smooth.tcl stroke.tcl surface.tcl teapots.tcl
Key-F Key-u	IncrPolyFactors DecrPolyUnits		texbind.tcl
Key-U	IncrPolyUnits		
Mouse-1	IncrSpinX		
Mouse-2	IncrSpinY		
Key-Escap			
		e FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)	
polyoff.to			
An example The origin The Tcl3D See file 1	e of the OpenGL re hal C sources are sources are Copyr LICENSE for comple	ed book modified to work with Tcl3D. Copyright (c) 1993-2003, Silicon Gr Fight (c) 2005, Paul Obermeier. Hete license information.	
This prog	ram demonstrates p	oolygon offset to draw a shaded	

polygon and its wireframe counterpart without ugly visual artifacts ("stitching").



Tcl3D: Doing 3D with Tcl

has a hole in it.

Demo:	quadric
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
Tcl3D demo: OpenGL Red Book	example quadric
Key-Escape Exit Running on Windows NT with a GeFord	i ? The RedBook RedBook
quadric.tcl	
The original C sources are	d book modified to work with Tcl3D. Copyright (c) 1993-2003, Silicon Graphics, Inc. ight (c) 2005, Paul Obermeier. te license information.
routines. Quadric objects a properties and the callback	he use of some of the gluQuadric* re created with some quadric routine to handle errors. no top or bottom and the circle

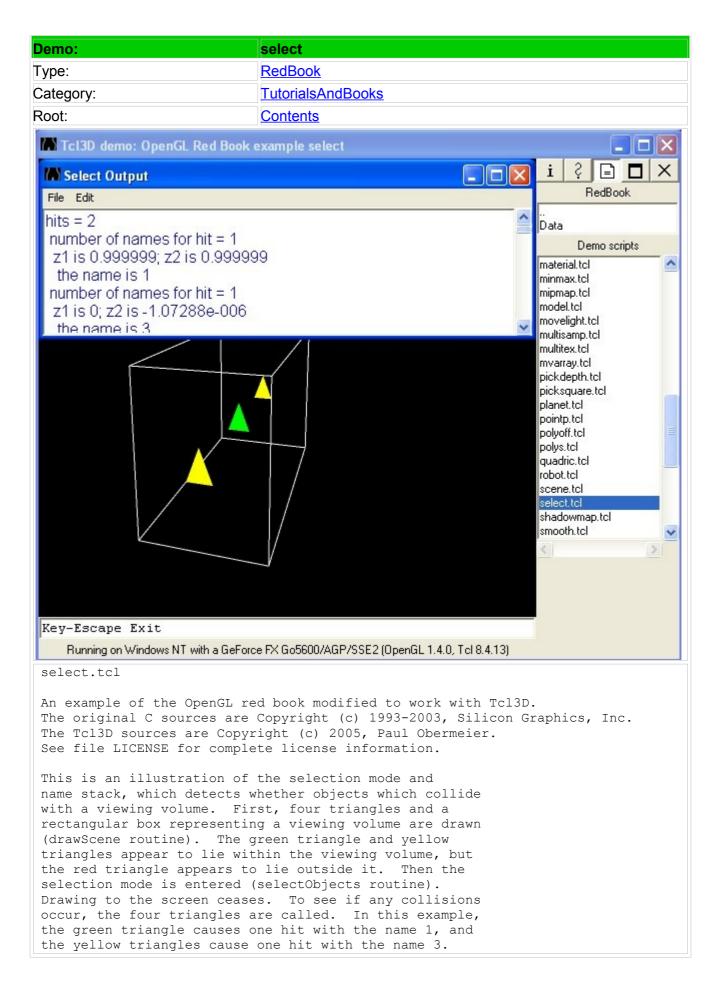
Tcl3D demos at a glanceVersion 0.5.0, December 2010Page 208 of 266Copyright © 2005-2010 by Paul Obermeier. All rights reserved.

Demo:		robot	
Туре:		RedBook	
Category:		TutorialsAndBooks	
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Key-S I Key-e I Key-E I Key-Escape E		e FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)	surface.tcl teapots.tcl texbind.tcl
The original The Tcl3D sou See file LICH This program to draw trans Interaction:	C sources are arces are Copyr ENSE for comple shows how to costated and rota	d book modified to work with Tcl3D. Copyright (c) 1993-2003, Silicon Gr ight (c) 2005, Paul Obermeier. te license information. omposite modeling transformations ted hierarchical models. s and e keys (shoulder and elbow) robot arm.	

Demo:	scene
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
Key-Escape Exit Running on Windows NT with a GeForc	example scene
	d book modified to work with Tcl3D.
The original C sources are	Copyright (c) 1993-2003, Silicon Graphics, Inc. ight (c) 2005, Paul Obermeier.
This program demonstrates t	he use of the GL lighting model.

Objects are drawn using a grey material characteristic.

A single light source illuminates the objects.

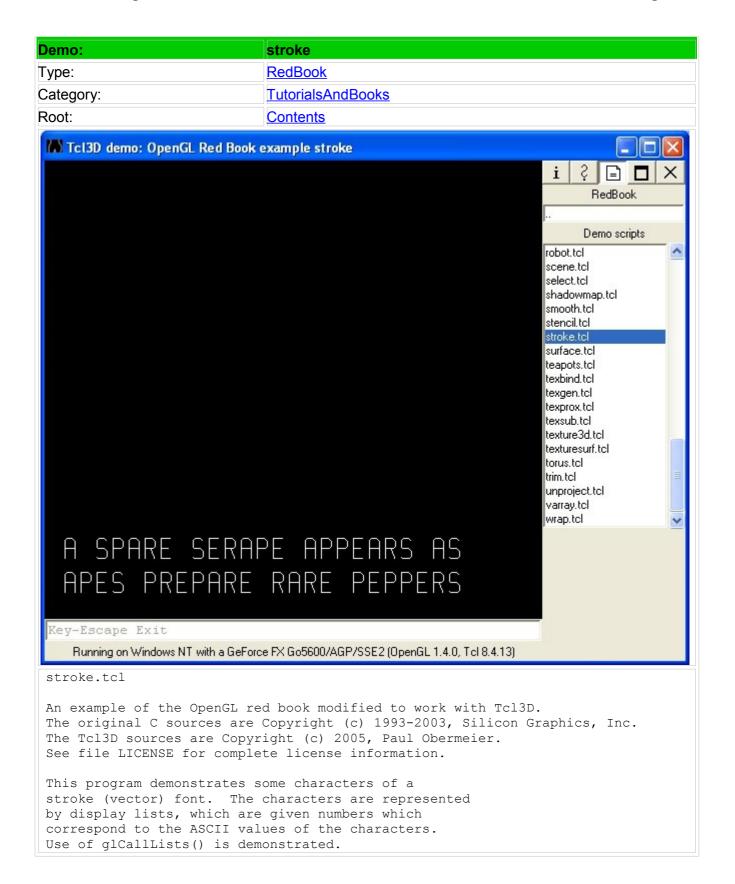


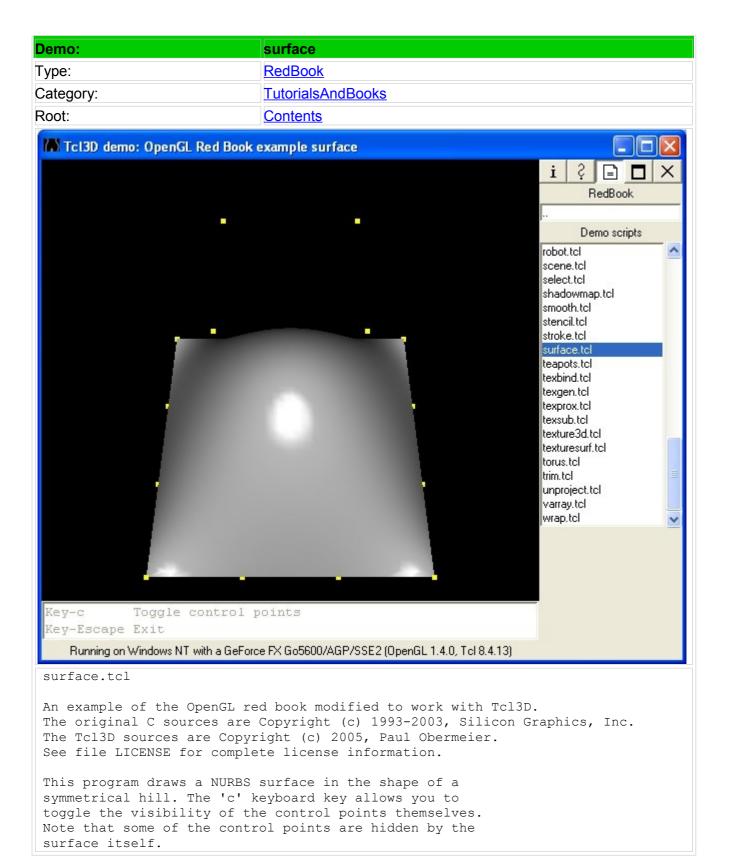
Demo:	shadowmap		
Туре:	RedBook		
Category:	TutorialsAndBooks		
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Tcl3D dem	no: OpenGL Red Book example shadowmap		
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Key-t	Toggle Texture		
Key-m	Toggle CompareMode		
Key-f	Toggle FuncMode		
Key-s	Toggle 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 oxomolo	of the OpenCI red back modified to work with malan		
An example of the OpenGL red book modified to work with Tcl3D. The original C sources are Copyright (c) 1993-2003, Silicon Graphics, Inc.			
	sources are Copyright (c) 2005, Paul Obermeier.		
	ICENSE for complete license information.		

Demo:	smooth
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
Key-Escape Exit	
<pre>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. See file LICENSE for complete license information. This program demonstrates smooth shading.</pre>	

A smooth shaded polygon is drawn in a 2-D projection.

Demo:	stencil
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	Contents
Key-Escape Exit Running on Windows NT with a GeFord stencil.tcl	example stencil
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 use of the stencil buffer for masking nonrectangular regions.	
	n in the stencil buffer.





Demo:	teapots	
Туре:	RedBook	
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Key-Escape Exit		
	e 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. See file LICENSE for complete license information.		

This program demonstrates lots of material properties. A single light source illuminates the objects.

creating and managing two textures.

Demo:	texgen	
Туре:	RedBook	
Category:	TutorialsAndBooks	
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Root: TcI3D demo: OpenGL Red Book e Generation of the second se		i ? I X RedBook Demo scripts robot.tcl scene.tcl select.tcl shadowmap.tcl smooth.tcl stencil.tcl stroke.tcl stroke.tcl stroke.tcl stroke.tcl texpors.tcl texpors.tcl texprox.tcl texture3d.tcl texture3d.tcl texturesurf.tcl torus.tcl tim.tcl unproject.tcl varray.tcl wrap.tcl
Key-o SetObjLinear Key-s SetSlanted		
Key-x SetZero		
Key-Escape Exit		
	e 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. The Tcl3D sources are Copyright (c) 2005, Paul Obermeier. See file LICENSE for complete license information. 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 $x = 0$.		

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Demo:	texprox	
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Harry Ramon Regist		
Key-Escape Exit proxyComponents are 32856		
proxy allocation succeeded		
proxyComponents are 32859		
proxy allocation succeeded		
Running on Windows NT with a GeForc	e FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)	
texprox.tcl		
The original C sources are	d book modified to work with Tcl3D. Copyright (c) 1993-2003, Silicon Gr ight (c) 2005, Paul Obermeier. te license information.	
The brief program illustrat This program only prints ou	es use of texture proxies. t some messages about whether	

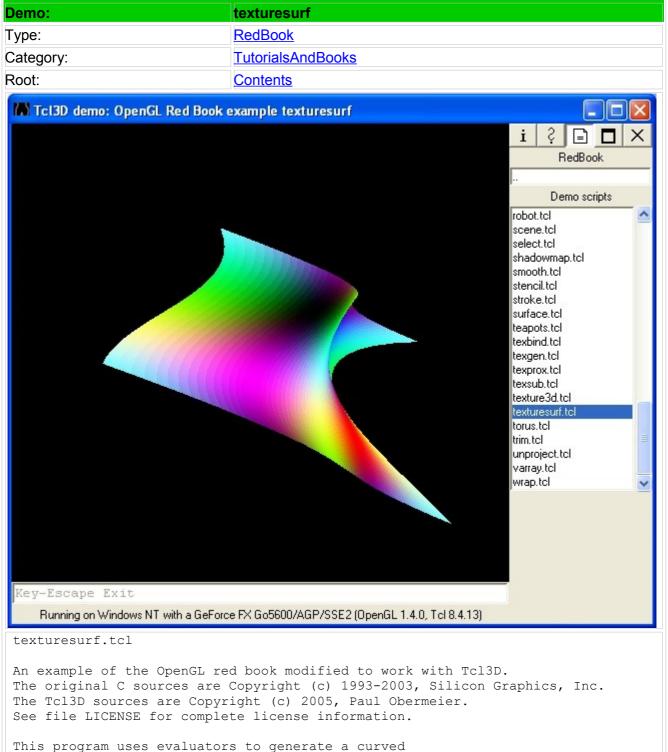
certain size textures are supported and then exits.

Demo:	texsub	
Туре:	RedBook	
Category:	TutorialsAndBooks	
Root:	Contents	
	e FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)	
texsub.tcl		
The original C sources are The Tcl3D sources are Copyr See file LICENSE for comple This program texture maps a two rectangles. This progr the texture coordinates fal	checkerboard image onto am clamps the texture, if l outside 0.0 and 1.0. texture subimage is used to If the r key is pressed,	

Tcl3D demos at a glanceVersion 0.5.0, December 2010Page 221 of 266Copyright © 2005-2010 by Paul Obermeier. All rights reserved.

"slices" of the 3D texture.

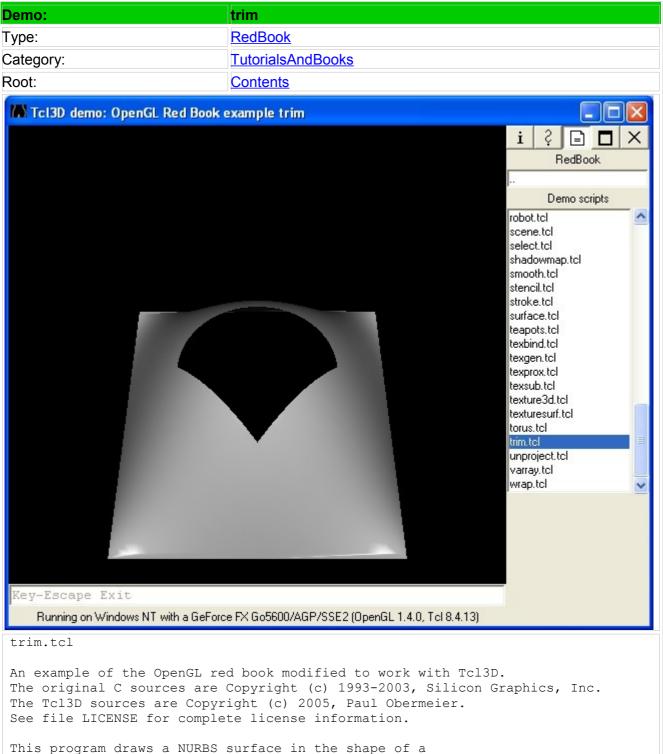
Demo:	texture3d
Туре:	RedBook
Category:	TutorialsAndBooks
Root:	<u>Contents</u>
Key-Escape Exit	e FX Go5600/AGP/SSE2 (OpenGL 1.4.0, Tcl 8.4.13)
texture3d.tcl	
The original C sources are The Tcl3D sources are Copyr See file LICENSE for comple This program demonstrates u	sing a three-dimensional texture. then renders two rectangles



surface and automatically generated texture coordinates.

Demo:	torus		
Туре:	RedBook		
Category:	TutorialsAndBooks		
Root:	Contents		
Tcl3D demo:	Tcl3D demo: OpenGL Red Book example torus		
Key-y R Key-i R Key-Escape E	i ? PedBook RedBook PedBook		
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. See file LICENSE for complete license information.			

This program demonstrates the creation of a display list.



symmetrical hill, using both a NURBS curve and pwl (piecewise linear) curve to trim part of the surface.

Demo:	unproject	
Гуре:	RedBook	
Category:	TutorialsAndBooks	
Root:	<u>Contents</u>	
🖬 Tcl3D demo: OpenO	GL Red Book example unproject	
W Unproject Output		× 🗖 🗐 🤉 i 🎗 🗖 💶
File Edit		RedBook
Coordinates at curs World coords at z= Coordinates at curs World coords at z= World coords at z= World coords at z= ""	0.0 are (-0.254539, 0.200062, -1 1.0 are (-25.453913, 20.006211	1.000000) ,-99.999894) 1.000000) ,-99.999894) () () () () () () () () () (
unproject.tcl		
The original C so The Tcl3D sources	OpenGL red book modified to urces are Copyright (c) 1993 are Copyright (c) 2005, Pau for complete license informa	3-2003, Silicon Graphics, Inc. 11 Obermeier.
	se button is pressed, this p osition and determines two 3	-

from which it was transformed. Very little is displayed.

Demo:	varray	
Туре:	RedBook	
Category:	TutorialsAndBooks	
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Category: TutorialsAndBooks Root: Contents I Tcl3D demo: OpenGL Red Book example varray I Cl3D demo: OpenGL Red Book example varray I Cl3D demo: OpenGL Red Book example varray RedBook RedBook RedBook RedBook RedBook RedBook RedB		
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. See file LICENSE for complete license information.		

This program demonstrates vertex arrays.

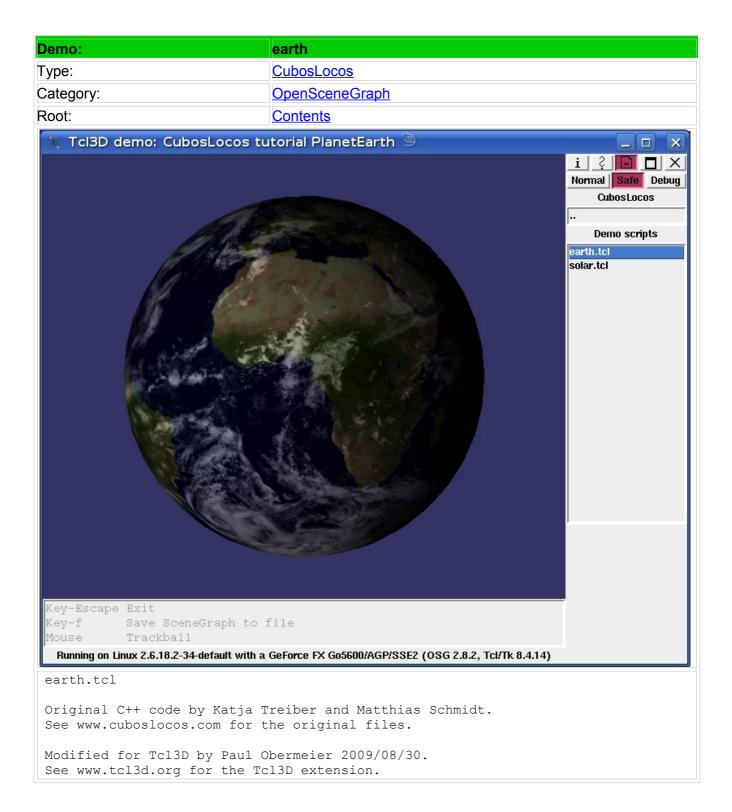
Demo:	wrap	
Туре:	RedBook	
Category:	TutorialsAndBooks	
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Key-s TexParameter S C	i ? RedBook Demo scripts robot.tcl scene.tcl scene.tcl scene.tcl shadowmap.tcl smooth.tcl stroke.tcl surface.tcl texpos.tcl texpos.tcl texpos.tcl texpos.tcl texpos.tcl texture3d.tcl texture3d.	
Key-S TexParameter S_R Key-t TexParameter T_C Key-T TexParameter T_R Key-Escape Exit	EPEAT LAMP	
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		

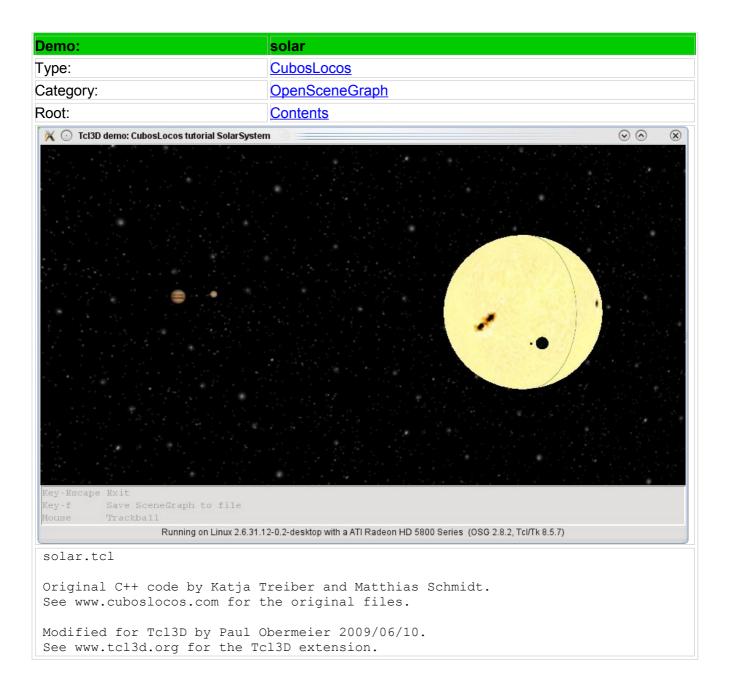
modes, if the texture coordinates fall outside 0.0 and 1.0. Interaction: Pressing the 's' and 'S' keys switch the wrapping between clamping and repeating for the s parameter. The 't' and 'T' keys control the wrapping for the t parameter.

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

Category:	OpenSceneGraph	
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Туре:	CubosLocos	
Category:	OpenSceneGraph	
Root:	Contents	
Some of the OpenSceneGraph tutorials from CubosLocos have been ported to run with Tcl3D. Original sources available at: <u>http://www.cuboslocos.com/</u>		
Available demos		
earth	solar	

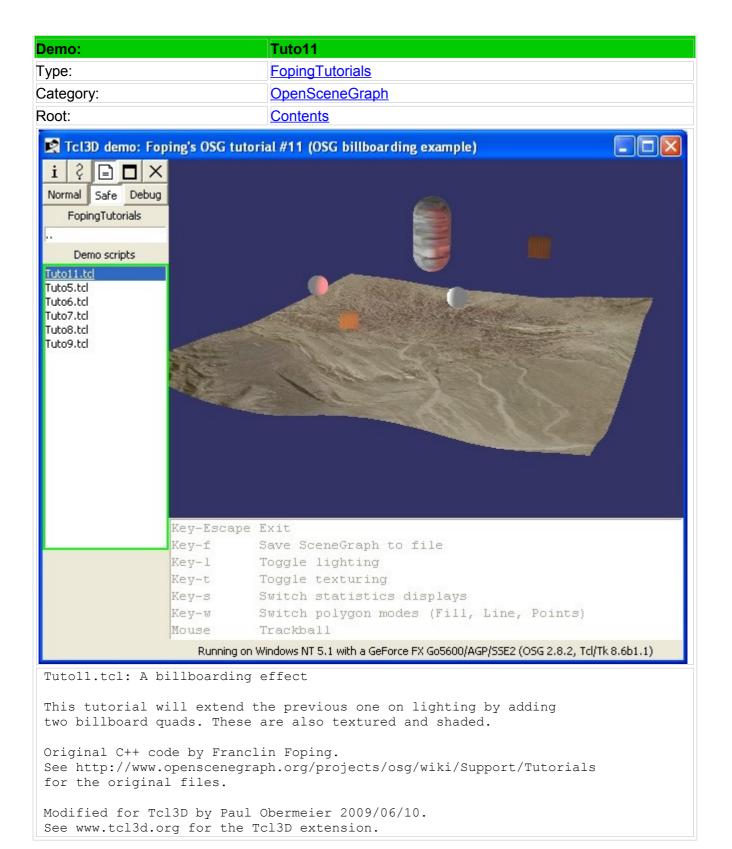




Tcl3D: Doing 3D with Tcl

www.tcl3d.org

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Some of the OpenScen	neGraph tutorials from I	Franclin Foping have b	een ported to run with
Tcl3D.			
Original	sources	available	at:
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	Available	e demos	
Tuto11	<u>Tuto5</u>	<u>Tuto6</u>	Tuto7
Tuto8	Tuto9		

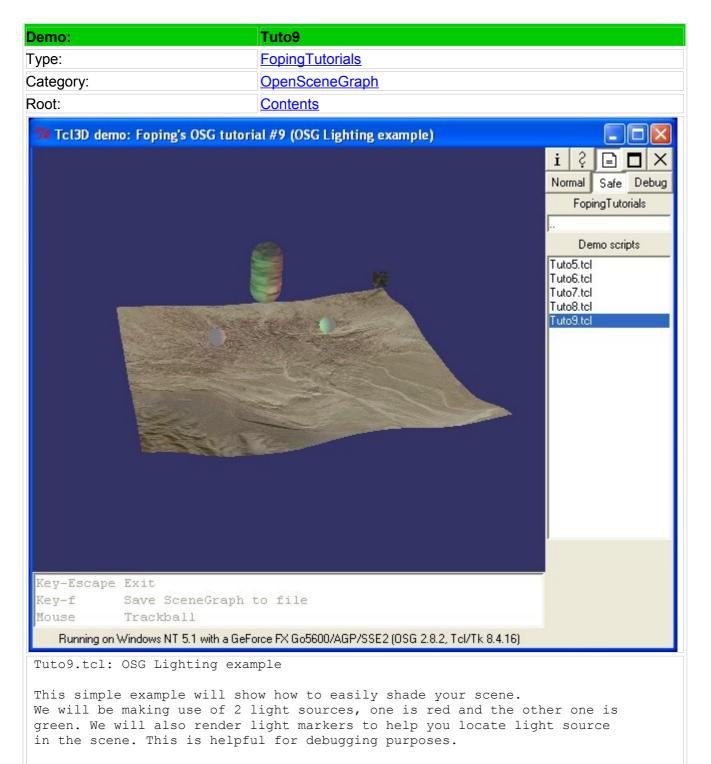


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Category:	OpenSceneGraph	
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for the original files.	bh.org/projects/osg/wiki/Suppo	ort/Tutorials
Modified for Tcl3D by Paul C See www.tcl3d.org for the Tc		

Demo:	Tuto6
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	n Foping. h.org/projects/osg/wiki/Support/Tutorials
for the original files.	
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Demo:	Tuto7	
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Key-Escape Exit Key-f Save SceneGraph Mouse Trackball		
-	orce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)	
Tuto7.tcl: Texturing and por Original C++ code by Franch See http://www.openscenegray for the original files. Modified for Tcl3D by Paul of See www.tcl3d.org for the Te	in Foping. ph.org/projects/osg/wiki/Support/Tuto Obermeier 2009/03/20.	orials

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Tuto8.tcl: Draw a shape with fog.			
See http://www.openscenegraph.org/projects/osg/wiki/Support/Tutorials for the original files. Modified for Tcl3D by Paul Obermeier 2009/03/20.	Original C++ code by Francl See http://www.openscenegra for the original files.	in Foping. ph.org/projects/osg/wiki/Support/Tuto	orials



Original C++ code by Franclin 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.

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		.org/projects/osg/wiki/Support	
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NPS06_SimpleHUD	NPS07_TestSwitchDOF	NPS08_TestUpdateCallback	NPS09_TestKeyboa
NPS10_TestManualCamera			

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Original C++ code by Jo See http://www.openscen for the original files.	seph Sullivan. egraph.org/projects/osg/wiki/Support/Tutorials
Modified for Tcl3D by P See www.tcl3d.org for t	aul Obermeier 2009/03/20. Ne Tcl3D extension.



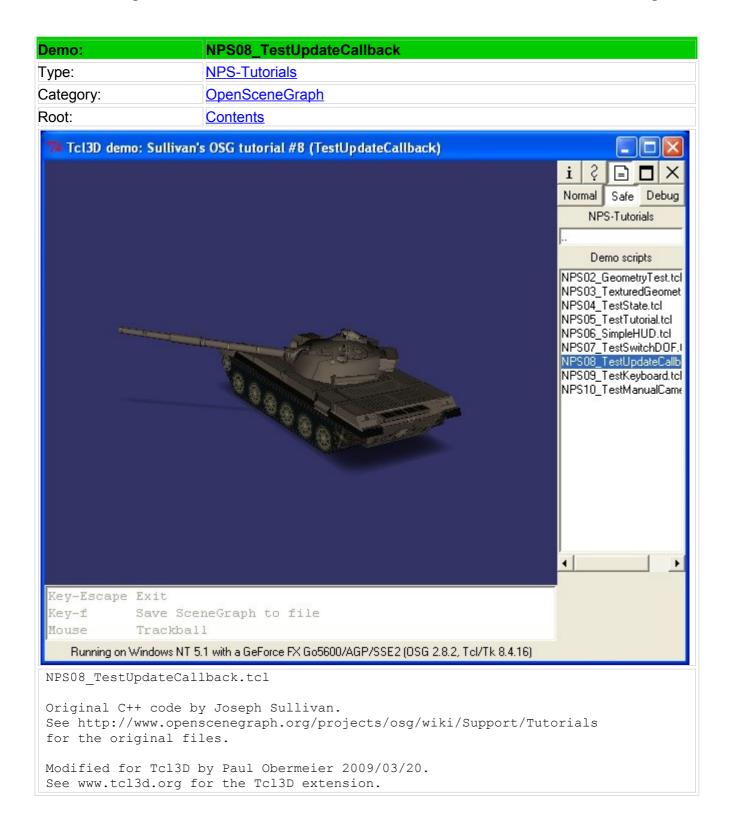
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	orce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)	
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Original C++ code by Joseph See http://www.openscenegrap for the original files.	Sullivan. ph.org/projects/osg/wiki/Support/Tuto	orials
Modified for Tcl3D by Paul (See www.tcl3d.org for the To		

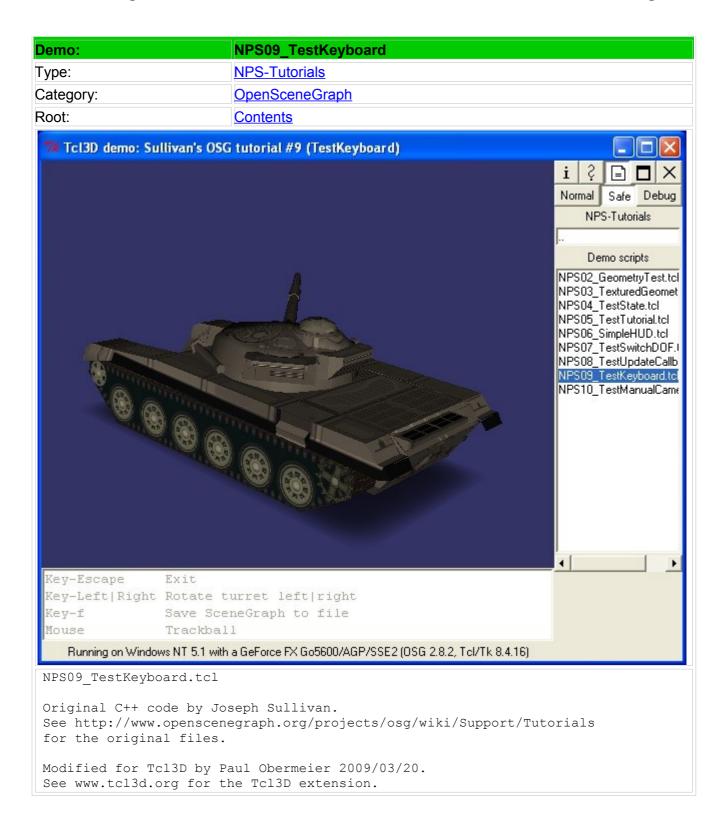
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Running on Windows NT 5.1 with a l	GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)	
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Original C++ code by Jose See http://www.opensceneg for the original files.	ph Sullivan. raph.org/projects/osg/wiki/Support/Tutc	orials
Modified for Tcl3D by Pau See www.tcl3d.org for the		

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	13D by Paul Obermeier 2009/03/20. rg for the Tcl3D extension.	

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Key-Escape Exit Key-f Save Scene Mouse Trackball	Graph to file
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Modified for Tcl3D by See www.tcl3d.org for	Paul Obermeier 2009/03/20. the Tcl3D extension.





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NPS10_TestM	ManualCamera.tcl	
See http://	++ code by Joseph Sullivan. /www.openscenegraph.org/projects/osg/wiki/Support/Tutc iginal files.	orials
	or Tcl3D by Paul Obermeier 2009/05/01. 13d.org for the Tcl3D extension.	

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been ported to run with Tcl3D.				
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Available demos				
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<u>GeometryTextured</u>	<u>HelloWorld</u>	Light	<u>MultiTextures</u>	
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Key-Escape E Key-f S	xit ave SceneGraph to file	
	rackball	
Running on W	ndows 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.		

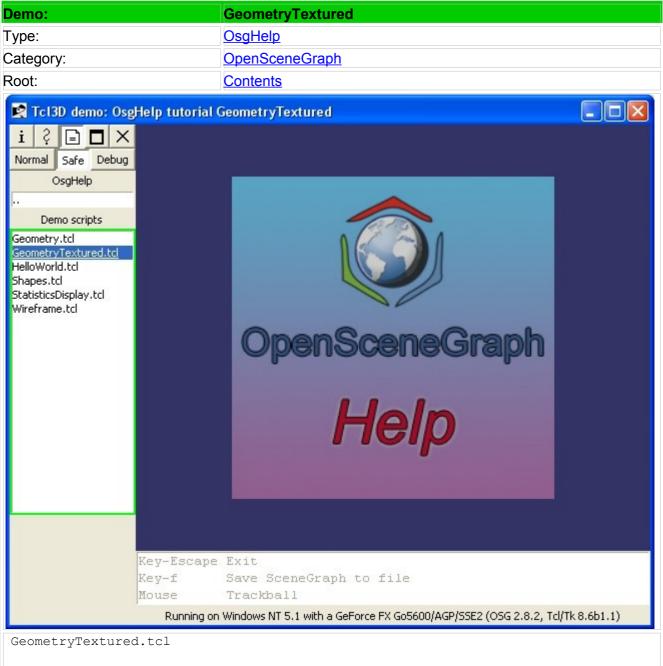
See www.tcl3d.org for the Tcl3D extension.

Demo:	AutoTransform
Туре:	<u>OsgHelp</u>
Category:	<u>OpenSceneGraph</u>
Root:	<u>Contents</u>
Image: Tot3D demo: OsgHelp ture i ? □ × Normal Safe Debug OsgHelp Demo scripts AntialiasedLines.tcl AutoTransform.tcl Geometry.tcl GeometryTextured.tcl HelloWorld.tcl Light.tcl MultiTextures.tcl Shapes.tcl StatisticsDisplay.tcl UpdateCallback.tcl Wireframe.tcl	
Key-f Mouse	Save SceneGraph to file Trackball
house	Running on Windows NT 5.1 with a Intel 945GM (OSG 2.8.2, Tcl/Tk 8.5.8)
AutoTransform.tcl	
	Peter Wraae Marino and Michael Bach Jensen. or the original files.
	Paul Obermeier 2010/03/20.

See www.tcl3d.org for the Tcl3D extension.

Demo:	Billboard
Туре:	<u>OsgHelp</u>
Category:	OpenSceneGraph
Root:	Contents
Image: Totab demo: OsgHelp tutorial Billboar i ? ? ? ? ?	
	rackball
Running on V	Vindows NT 6.1 with a ATI Radeon HD 5800 Series (OSG 2.8.2, Tcl/Tk 8.5.8)
Billboard.tcl Original C++ code by Peter W See www.osghelp.com for the	raae Marino and Michael Bach Jensen. original files.

Demo:	Geometry	
Туре:	OsgHelp	
Category:	OpenSceneGraph	
Root:	Contents	
Tcl3D demo: OsgHelp tutorial Ge i i Normal Safe Debug OsgHelp Demo scripts Geometry.tcl GeometryTextured.tcl HelloWorld.tcl Shapes.tcl StatisticsDisplay.tcl Wireframe.tcl	ometry	
	xit ave SceneGraph to file 'rackball	
	indows NT 5.1 with a GeForce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.6b1.1)	
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.		



Original C++ code by Peter Wraae Marino and Michael Bach Jensen. See www.osghelp.com for the original files.

Demo:	HelloWorld	
Туре:	<u>OsgHelp</u>	
Category:	OpenSceneGraph	
Root:	<u>Contents</u>	
Image: Classic sector of the sector of th	sid	
	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.		

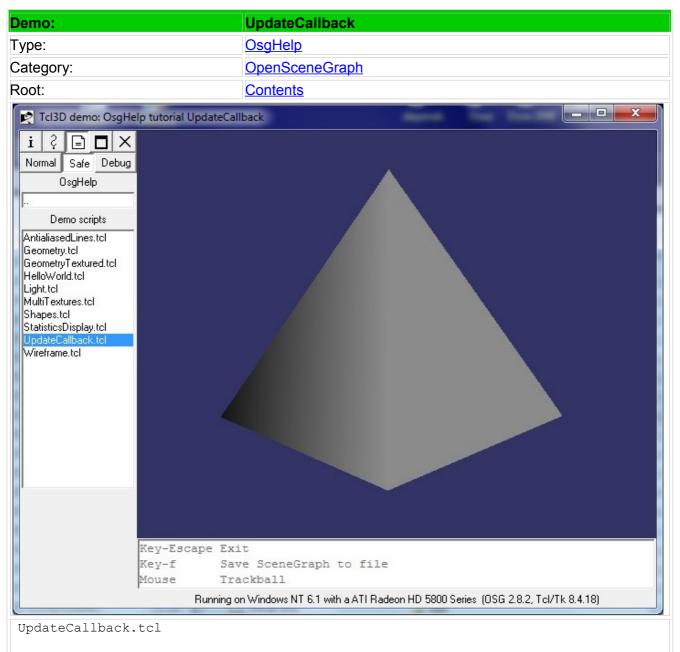
Demo:	Light	
Туре:	OsgHelp	
Category:	OpenSceneGraph	
Root:	Contents	
Image: Tcl3D demo: OsgHelp tutorial Lig i ? Normal Safe OsgHelp Demo scripts AntialiasedLines.tcl Geometry.tcl GeometryTextured.tcl HelloWorld.tcl Light.tcl Shapes.tcl StatisticsDisplay.tcl Wireframe.tcl	 	
	ave SceneGraph to file 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		
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 To		

Tcl3D demos at a glanceVersion 0.5.0, December 2010Page 257 of 266Copyright © 2005-2010 by Paul Obermeier. All rights reserved.

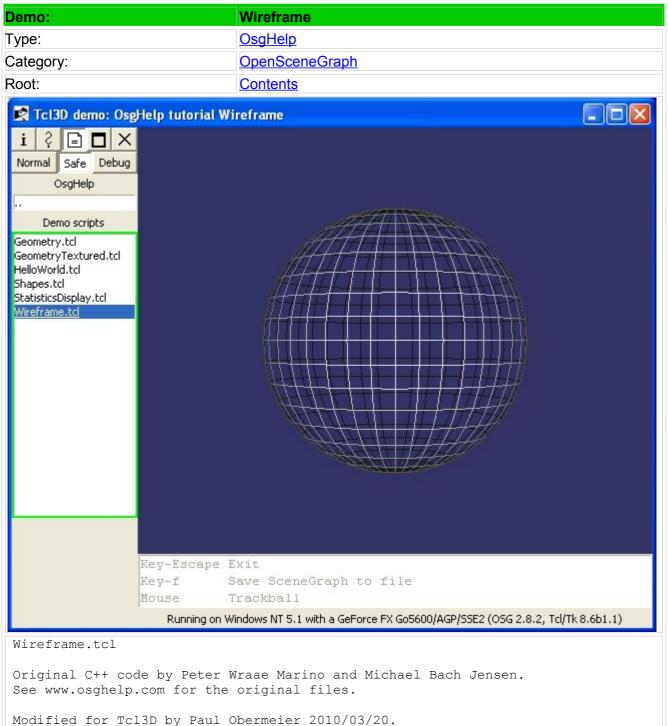
Demo:	MultiTextures	
Туре:	OsgHelp	
Category:	OpenSceneGraph	
Root:	Contents	
Tcl3D demo: OsgHelp tutorial MultiTere i		
	Save SceneGraph to file	
	Frackball	
harming on	Windows NT 6.1 with a ATI Radeon HD 5800 Series (OSG 2.8.2, Tcl/Tk 8.4.18)	
MultiTextures.tcl Original C++ code by Peter Wraae Marino and Michael Bach Jensen. See www.osghelp.com for the original files.		
Modified for Tcl3D by Paul O	bermeier 2010/03/20.	

Demo:	Shapes	
Туре:	<u>OsgHelp</u>	
Category:	OpenSceneGraph	
Root:	<u>Contents</u>	
Image: Classical demo: OsgHelp tutorial Shi Image: Classical demo: OsgHelp OsgHelp Image: Classical demo: GeometryTextured.tcl HelloWorld.tcl Shapes.tcl StatisticsDisplay.tcl Wireframe.tcl Image: Classical demo: Image: Classical demo: Image: Classical demo:		
Key-f S	ave SceneGraph to file rackball	
	indows 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.		

Demo:	StatisticsDisplay		
Туре:	<u>OsgHelp</u>		
Category:	OpenSceneGraph		
Root:	Contents		
Image: Control of the second secon	Help tutorial StatisticsDisplay Image: Constraint of the state		
	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.			



Original C++ code by Peter Wraae Marino and Michael Bach Jensen. See www.osghelp.com for the original files.



Туре:	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: <u>http://www.skew-matrix.com/OSGQSG/</u>			
Available demos			
Callback	Lighting	Picking	

Demo:		Callback	
Туре:		QuickStartGuide	
Category:		OpenSceneGraph	
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74 Tcl3D demo	: OSG QuickStartGuid	e example Callback	i ? I X Normal Safe Debug QuickStartGuide
			, Demo scripts Callback.tol Lighting.tol Picking.tol
	Ixit Save SceneGraph t Frackball	o file	-
		rce 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			
	Tcl3D by Paul O d.org for the Tc	bermeier 2009/10/20. 13D extension.	

Demo:	Lighting	
Туре:	QuickStartGuide	
Category:	<u>OpenSceneGraph</u>	
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Root:	Contents le example Lighting	L 2 I X Iormal Safe Debug QuickStartGuide Demo scripts allback.tcl ghting.tcl icking.tcl
Key-Escape Exit Key-f Save SceneGraph t Mouse Trackball Running on Windows NT 5.1 with a GeFo	co file rce 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 ligh	t and material control	
Modified for Tcl3D by Paul O See www.tcl3d.org for the Tc		

Demo:	Picking		
Туре:	QuickStartGuide		
Category:	OpenSceneGraph		
Root:	<u>Contents</u>		
Tcl3D demo: OSG QuickStartGui	de example Picking	i ? i X Normal Safe Debug QuickStartGuide Demo scripts Callback.tcl Lighting.tcl Picking.tcl	
Key-Escape Exit Key-f Save SceneGraph Mouse Trackball Running on Windows NT 5.1 with a GeFo	to file prce FX Go5600/AGP/SSE2 (OSG 2.8.2, Tcl/Tk 8.4.16)		
OpenSceneGraph Quick Start (http://www.skew-matrix.com/(
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 C See www.tcl3d.org for the Tc			