

Introduction to Graphics API's

March 30th 2009

MAE 574, Virtual Reality Applications and
Research

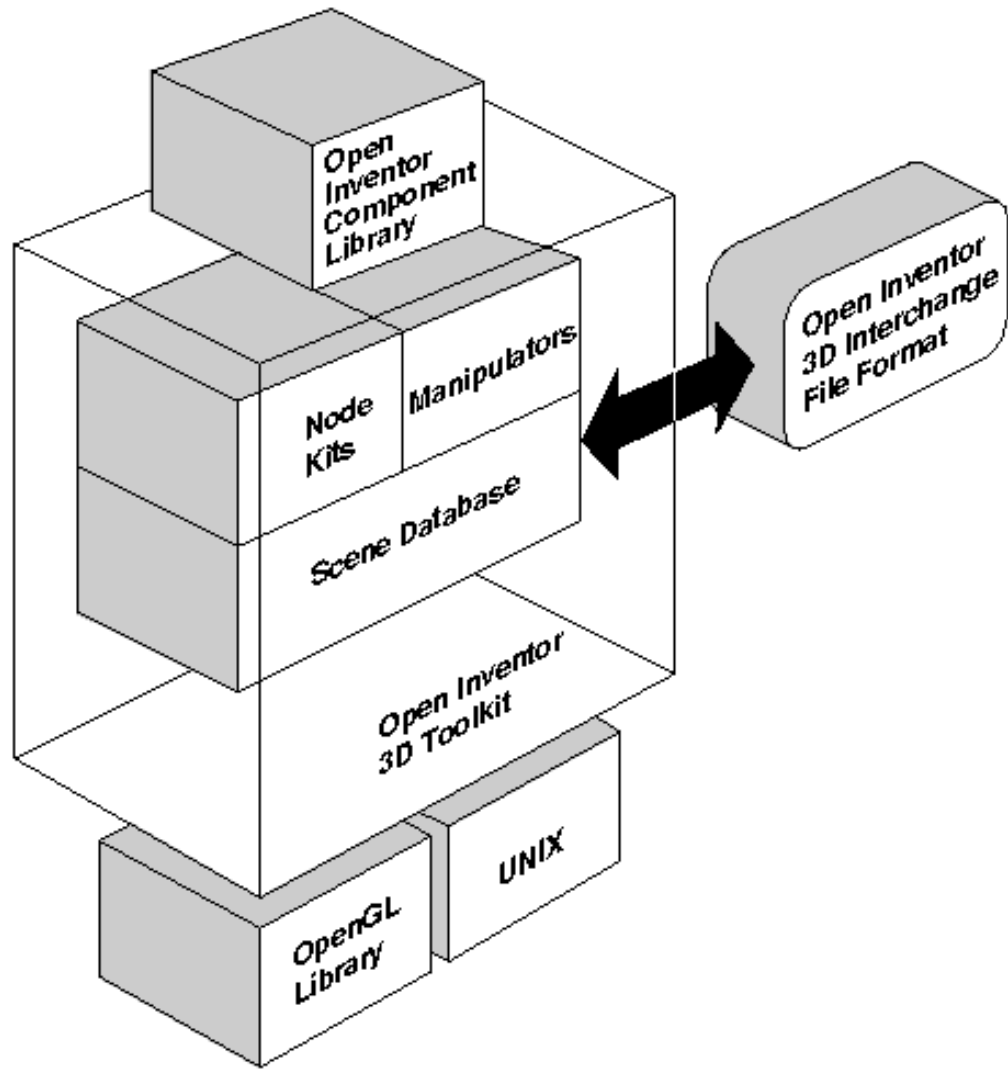
Instructor: Govindarajan Srimathveeravalli

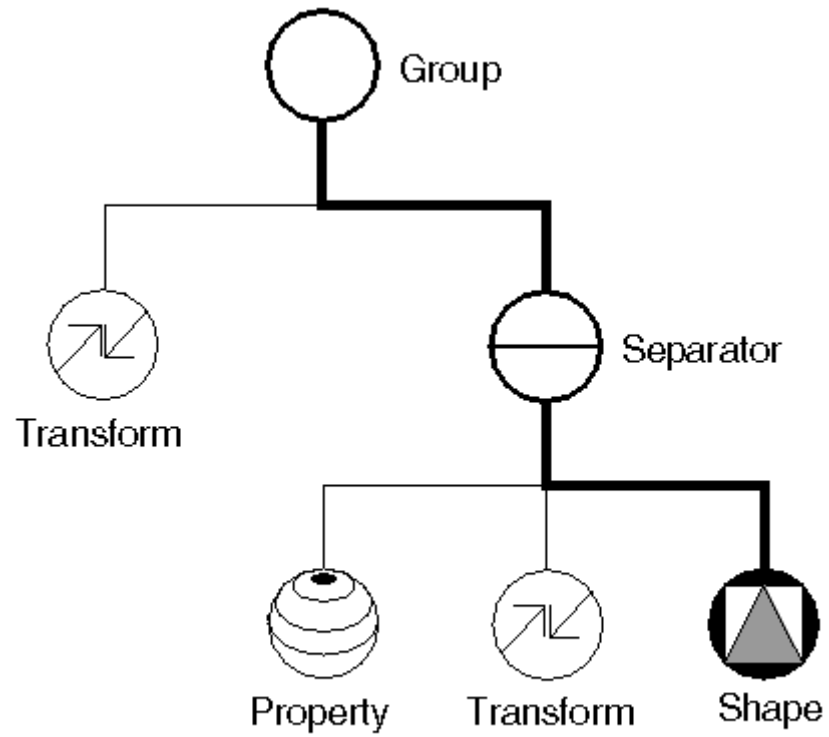
What's a Graphics API? How is it different from OpenGL?

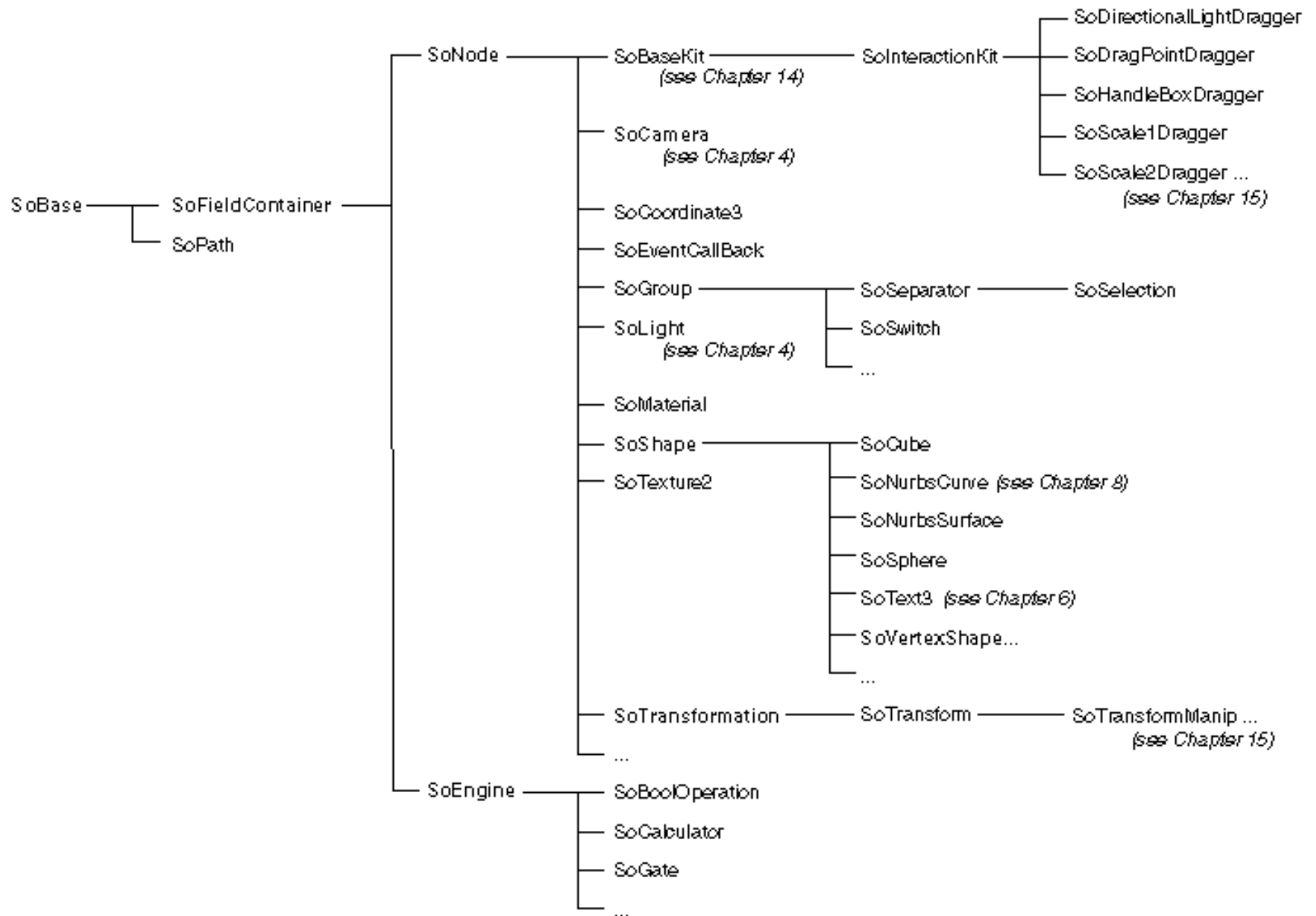
- OpenGL
 - Shading Languages
 - GLSL
 - Cg
- Fahrenheit API
- MESA 3D
- Direct3D/DirectX
- Java3D
 - Performer
 - OpenInventor
 - Coin
 - OpenSceneGraph
 - OpenSG
 - WTK
 - VTK/ITK
 - OGRE
- Graphic – Game Engines?
 - TrueVision3D
 - Unreal
 - jME
 - Visual3D.NET

Coin3D

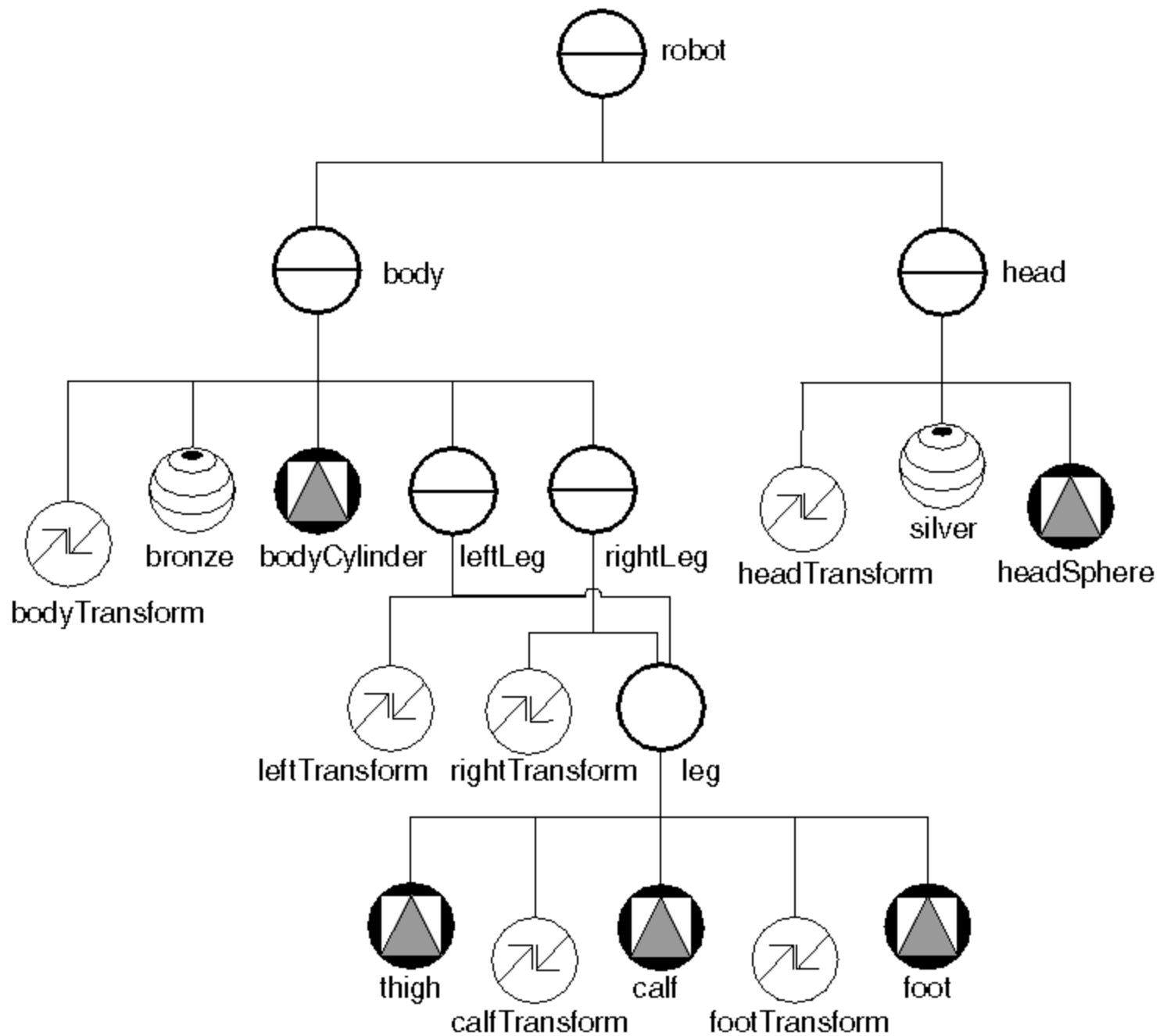
- Inventor Mentor: http://www-evasion.imag.fr/~Francois.Faure/doc/inventorMentor/cgi_html/index.html







boldface = abstract class





```

#include <Inventor/Xt/SoXt.h>
#include <Inventor/Xt/SoXtRenderArea.h>
#include <Inventor/nodes/SoCone.h>
#include <Inventor/nodes/SoDirectionalLight.h>
#include <Inventor/nodes/SoMaterial.h>
#include <Inventor/nodes/SoPerspectiveCamera.h>
#include <Inventor/nodes/SoSeparator.h>

main(int , char **argv)
{
    // Initialize Inventor. This returns a main window to use.
    // If unsuccessful, exit.
    Widget myWindow = SoXt::init(argv[0]); // pass the app name
    if (myWindow == NULL) exit(1);

    // Make a scene containing a red cone
    SoSeparator *root = new SoSeparator;
    SoPerspectiveCamera *myCamera = new SoPerspectiveCamera;
    SoMaterial *myMaterial = new SoMaterial;
    root->ref();
    root->addChild(myCamera);
    root->addChild(new SoDirectionalLight);
    myMaterial->diffuseColor.setValue(1.0, 0.0, 0.0); // Red
    root->addChild(myMaterial);
    root->addChild(new SoCone);

    // Create a renderArea in which to see our scene graph.
    // The render area will appear within the main window.
    SoXtRenderArea *myRenderArea = new SoXtRenderArea(myWindow);

    // Make myCamera see everything.
    myCamera->viewAll(root, myRenderArea->getViewportRegion());

    // Put our scene in myRenderArea, change the title
    myRenderArea->setSceneGraph(root);
    myRenderArea->setTitle("Hello Cone");
    myRenderArea->show();

    SoXt::show(myWindow); // Display main window
    SoXt::mainLoop();     // Main Inventor event loop
}

```