1 Administrivia

Announcements

Project 1 due Wednesday.

Assignment

Read Chapter 3.1–3.3, 3.6.

From Last Time

2-D OpenGL lab.

Outline

1. Color.

2. Projections.

3. Viewports.

4. Lab.
Coming Up

Interactive techniques.

2 Color

Additive color. Tristimulus values vs. continuous frequency of light.

Two color models:

1. RGB color.
   The color cube.

2. Indexed color.
   
   (a) What is it? Why use it?
   
   (b) Where is it used?
      
      In 8-bit mode, which 256 colors get displayed? Color map clashes in X Window system.

3 Orthographic Projection

Now we see the mapping:

\[(x, y, z) \rightarrow (x, y, 0)\]

\[\text{glOrtho}(\text{GLdouble left, GLdouble right, GLdouble bottom, GLdouble top, GLdouble zNear, GLdouble zFar});\]
4 Viewports

What happens when the aspect ratio of the clipping region doesn’t match that of the window?

How can we fix that:

- Use a viewport (sub-window) on the window:

  ```c
  glViewport(GLint x, GLint y, GLsizei width, GLsizei height);
  ```

  We have a call-back whose parameters are the size of the resized window.

  This essentially adjusts the window’s aspect ratio to match the clipping region.

- Adjust the clipping region to match the window. Again, read the current window dimensions.

- Re-adjust the window size from the program. (Kinda obnoxious.)