Computer Viewing

Objectives

• Introduce the mathematics of projection
• Introduce OpenGL viewing functions
• Look at alternate viewing APIs

Computer Viewing

• There are three aspects of the viewing process, all of which are implemented in the pipeline,
  - Positioning the camera
    • Setting the model-view matrix
  - Selecting a lens
    • Setting the projection matrix
  - Clipping
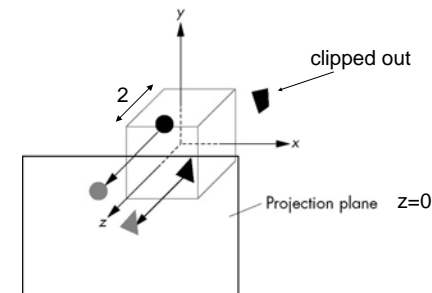   • Setting the view volume

The OpenGL Camera

• In OpenGL, initially the object and camera frames are the same
  - Default model-view matrix is an identity
• The camera is located at origin and points in the negative z direction
• OpenGL also specifies a default view volume that is a cube with sides of length 2 centered at the origin
  - Default projection matrix is an identity

Default Projection

Default projection is orthogonal

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