Hidden Surfaces

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Angel: Interactive Computer Graphics 3E © Addison-Wesley 2002
Hidden Surface Determination

Question:

How do we (or OpenGL) decide what object is in front of what if the primitives go through the pipeline one at a time, independent of one another?

- Painter’s Algorithm
- Painter’s + Binary Space Partition Tree
- Z-Buffer Algorithm
Painter’s & BSP

See Board Work
OpenGL uses a *hidden-surface* method called the z-buffer algorithm that saves depth information as objects are rendered so that only the front objects appear in the image.
Z-Buffer Example

See boardwork
Using The Z-Buffer

The algorithm uses an extra buffer, the z-buffer, to store depth information as geometry travels down the pipeline. It must be

Requested in `main.c`
```
glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB | GLUT_DEPTH)
```

Enabled in `init.c`
```
glEnable(GL_DEPTH_TEST)
```

Cleared in the display callback
```
glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT)
```