

Textures

Texture:

An image applied to the surface of a primitive in some way.

A texture is typically read from an image file.

Texture Uses

Apply an image, such as a course syllabus to a triangle.

Apply an image to give so that a primitive resembles some natural material ...
... such as wood or stone.

Apply a non-color image that affects some other aspect of fragment preparation ...
... such as a rough-surface surface normal to affect lighting ...
... or something that indicates that the surface has a hole.

Texture Images

A texture is typically read from an image file (photo, artwork, etc.).

A texture image consists of an array of *texels* (texture pixels).

A texture coordinate is often written $\begin{bmatrix} s \\ t \end{bmatrix}$ or (s, t) ...
... with s used instead of x and t used instead of y .

The coordinate space for a texture image is $s \in [0, 1]$, $t \in [0, 1]$.

This means that one can write texture coordinates ...
... without knowing how many pixels are in the underlying image.

Textures and Primitives

To apply a texture to a primitive one needs to ...
... assign a texture coordinate to a vertex.

With course library, `pTCoor` is a texture coordinate and can be inserted into a buffer set.

```
bset_lonely
  << pCoor( 11, -4, -2.8 ) << pCoor( 11, 5, -2.8 ) << pCoor( 2, 5, -2.8 )
  << pTCoor( 1.0, 1.0 )    << pTCoor( 1.0, 0.0 )    << pTCoor( 0.0, 0.0 )
  << color_green          << color_red             << color_blue;
```

Sample problem: 2017 Midterm Exam Problem 3 (OpenGL).

Magnification and Minification [sic]



