CSC 240 Computer Graphics
Day 19: Hidden Surface Removal & Blender Basics

Nick Howe
Smith College
Homework 7
Your Questions

Q. Could you clarify what you mean by eliminated via backface culling? I thought that referred to the polygons that weren't drawn, so the polygons that have normals with a dot product greater than 0.

A. Exactly! If we find a positive dot product, we don’t draw.

Q. I'm curious how you find the normal vector using a code? Or using a code to find the dot product for backface culling

A. We usually precompute the normal vector for shading purposes. It can be found using the vector cross product of two triangle sides.
Q. I don't quite understand the third question.
A. It asks how to determine facing using the normal
Q. Can you elaborate more on winding order?
A. Winding order describes whether the vertices are CW or CCW in projection
Q. Why does z-buffering do more fine-grained distinctions?

A. The painter’s algorithm orders by entire polygons. With z-buffering, you can order by pixel.

Q. What does the PolygonOffsetFactor and PolygonOffsetUnits mean?

A. WebGL doesn’t document this so well:

The offset is added before the depth test is performed and before the value is written into the depth buffer.

PolygonOffsetFactor: sets the scale factor for the variable depth offset for each polygon. The default value is 0.

PolygonOffsetUnits: sets the multiplier by which an implementation-specific value is multiplied with to create a constant depth offset. The default value is 0.
Q. I'm still a bit confused by the example for z buffering. Why was the blue object not drawn if the yellow object was drawn after the red object, even though the yellow object was also not closer?

A. Only the visible portion of the yellow is drawn.
Your Questions

Q. Could you show an example/demo of how you scale an object in Blender in class?
A. Sure!
Lab 12: Blender Intro

Icebreaker: Have you ever worked with Blender or another 3D modeling program before?