Why do my specular highlights show up so strongly on polygon edges?

Asked 5 years, 8 months ago   Active 5 years, 8 months ago   Viewed 798 times

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I have a simple application that draws a sphere with a single directional light. I'm creating the sphere by starting with an octahedron and subdividing each triangle into 4 smaller triangles.

With just diffuse lighting, the sphere looks very smooth. However, when I add specular highlights, the edges of the triangles show up fairly strongly. Here are some examples:

Diffuse only:
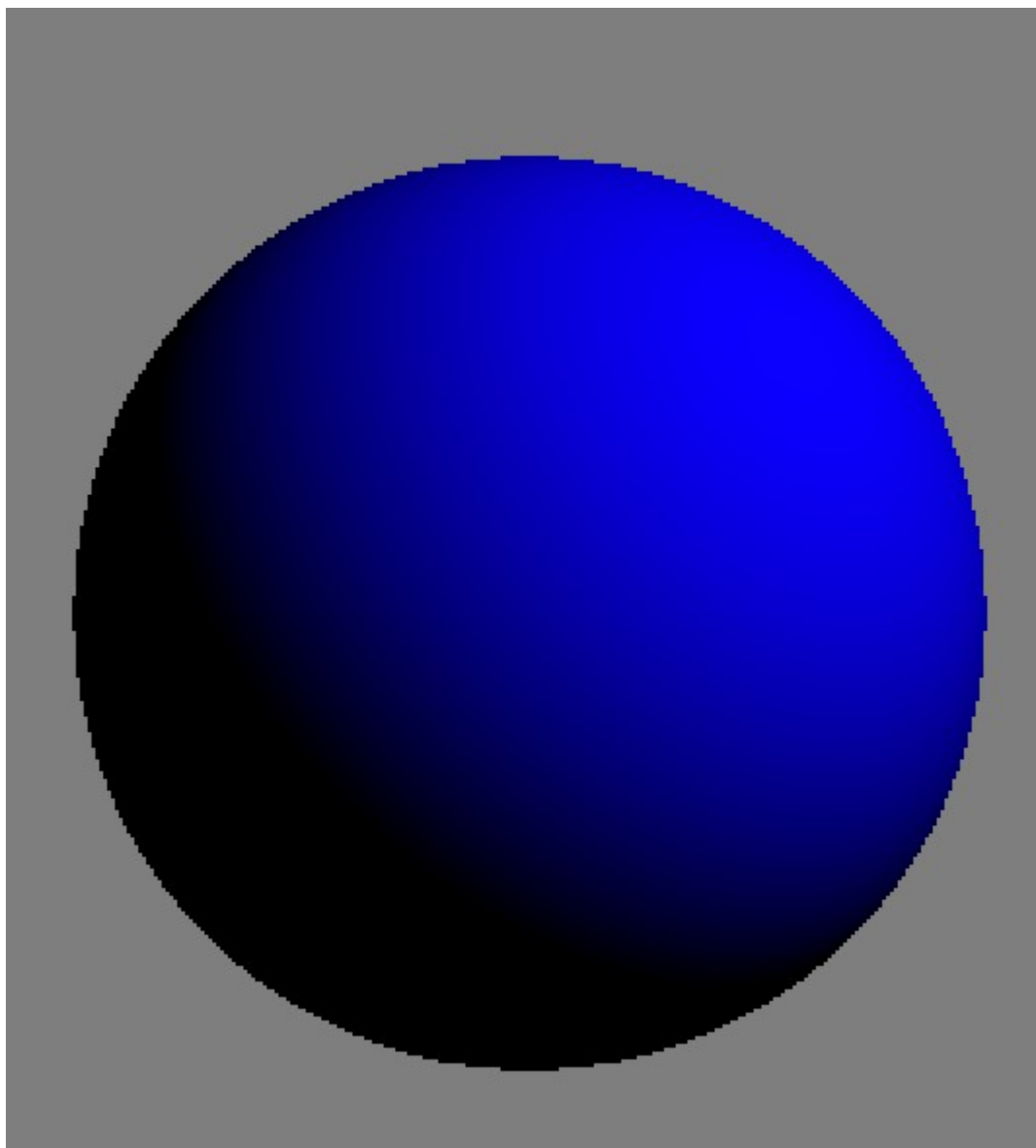
Diffuse and Specular:

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Interpolating normals into a face can (and almost always will) result in a shortening of the normal. That's why the highlight is darker in the center of a face and brighter at corners and edges. If you do this, just re-normalize the normal in the fragment shader:

```
fNormal = normalize(fNormal);
```

Btw, you cannot precompute the half vector as it is view dependent (that's the whole point of specular lighting). In your current scenario, the highlight will not change when you just move the camera (keeping the direction).

One way to do this in the shader is to pass an additional uniform for the eye position and then calculate the view direction as `eyePosition - vertexPosition`. Then continue as you did on the CPU.

edited Apr 18 '15 at 19:19   answered Apr 18 '15 at 17:28

Nico Schertler
30.3k 4 32 61

Thank you! That explains a few things I was curious about. – user1118321 Apr 18 '15 at 19:26

For the record, `fNormal = normalize(fNormal);` won't actually work because `fNormal` is an input variable. I had to create a new variable, like `vec3 normal = normalize(fNormal);`. – user1118321 Apr 18 '15 at 23:17

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