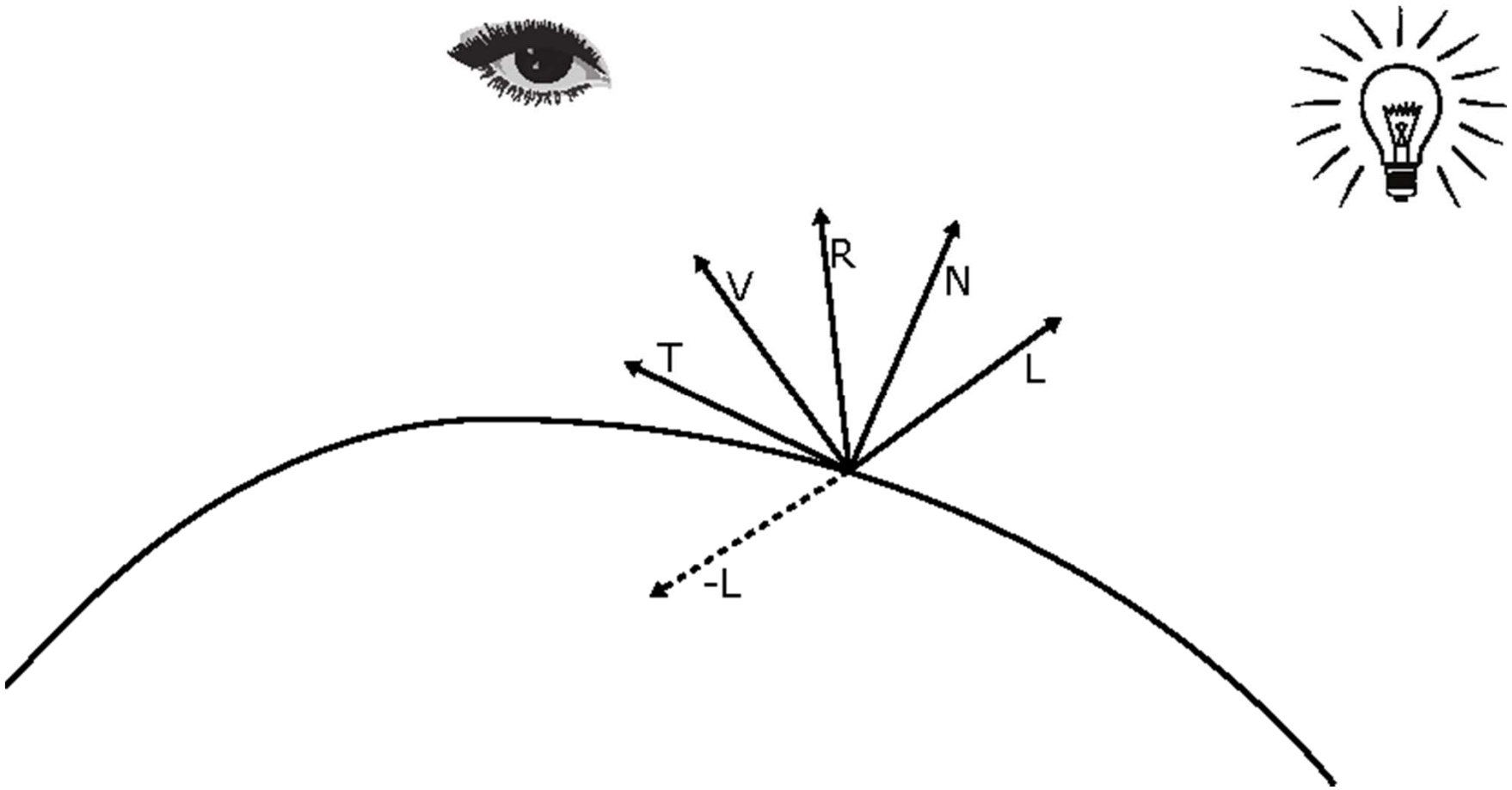

Figure 13.1: Vectors used in Phong lighting

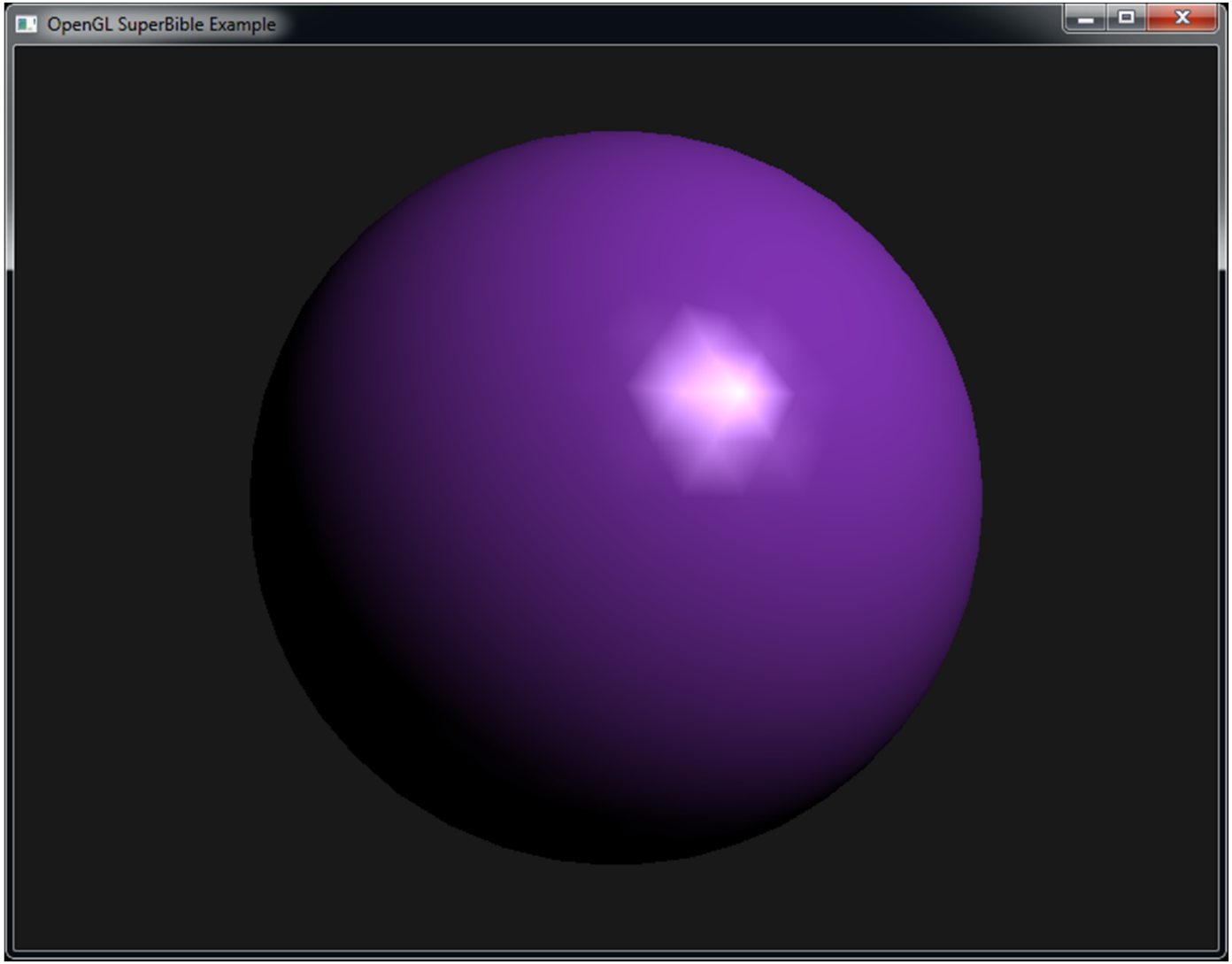

Figure 13.2: Per-vertex lighting (Gouraud shading)

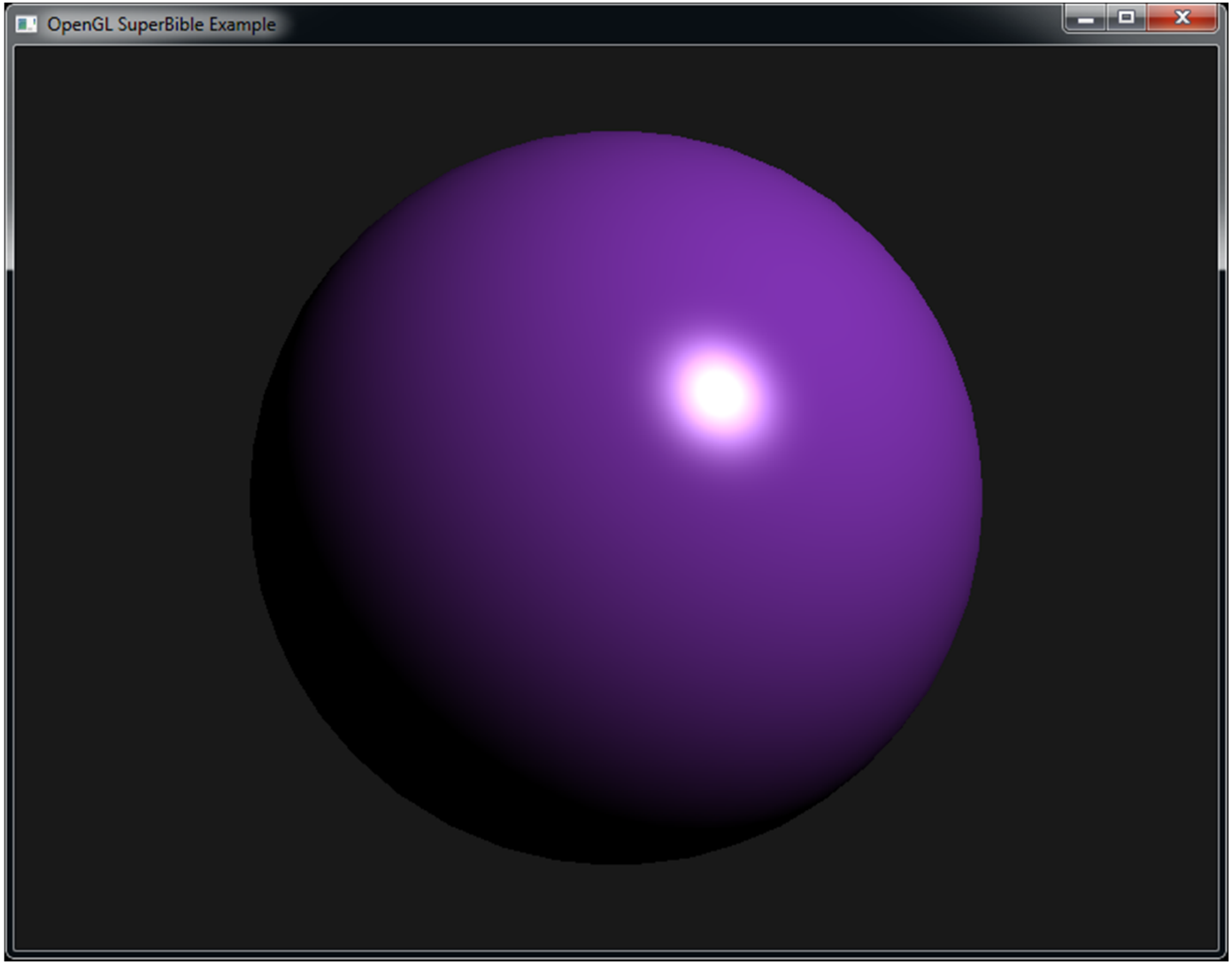

Figure 13.3: Per-fragment lighting (Phong shading)

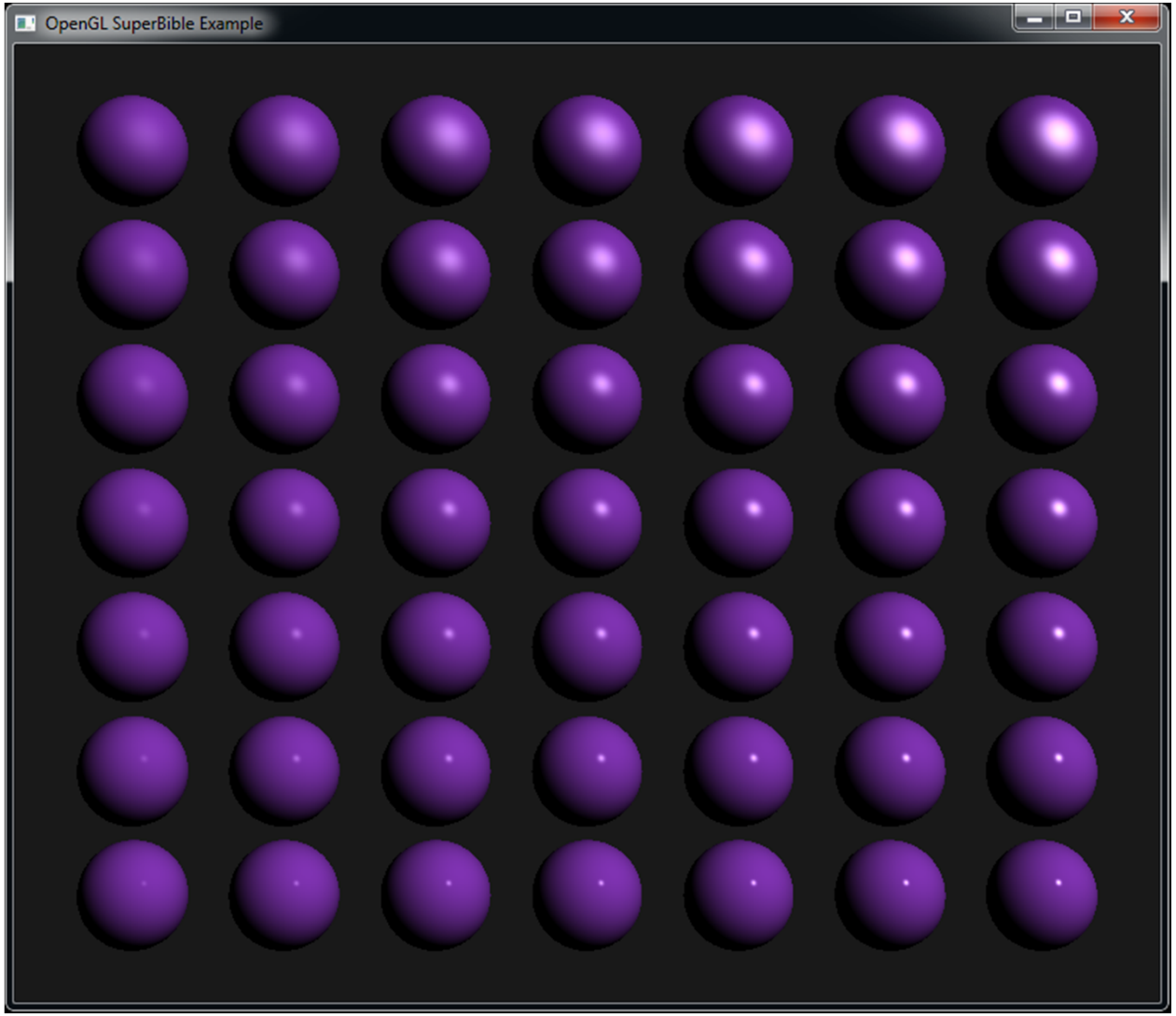

Figure 13.4: Varying specular parameters of a material

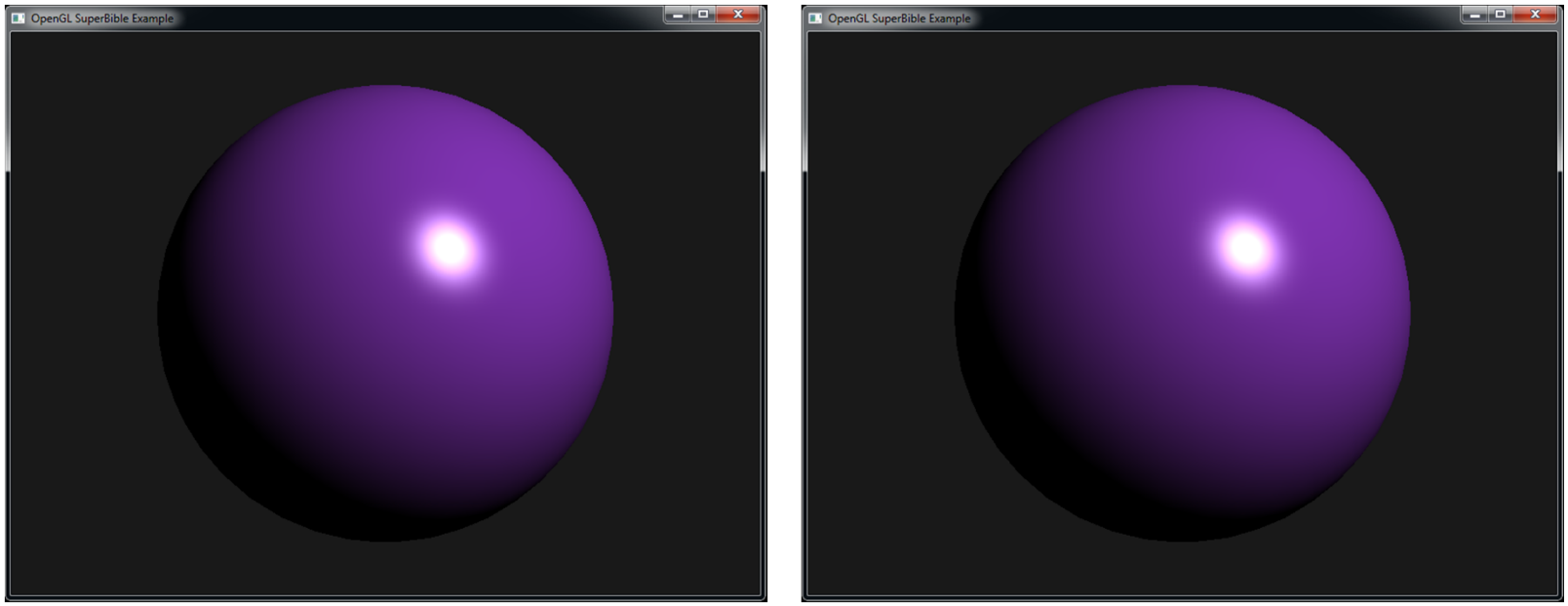

Figure 13.5: Phong lighting (left) versus Blinn-Phong lighting (right)

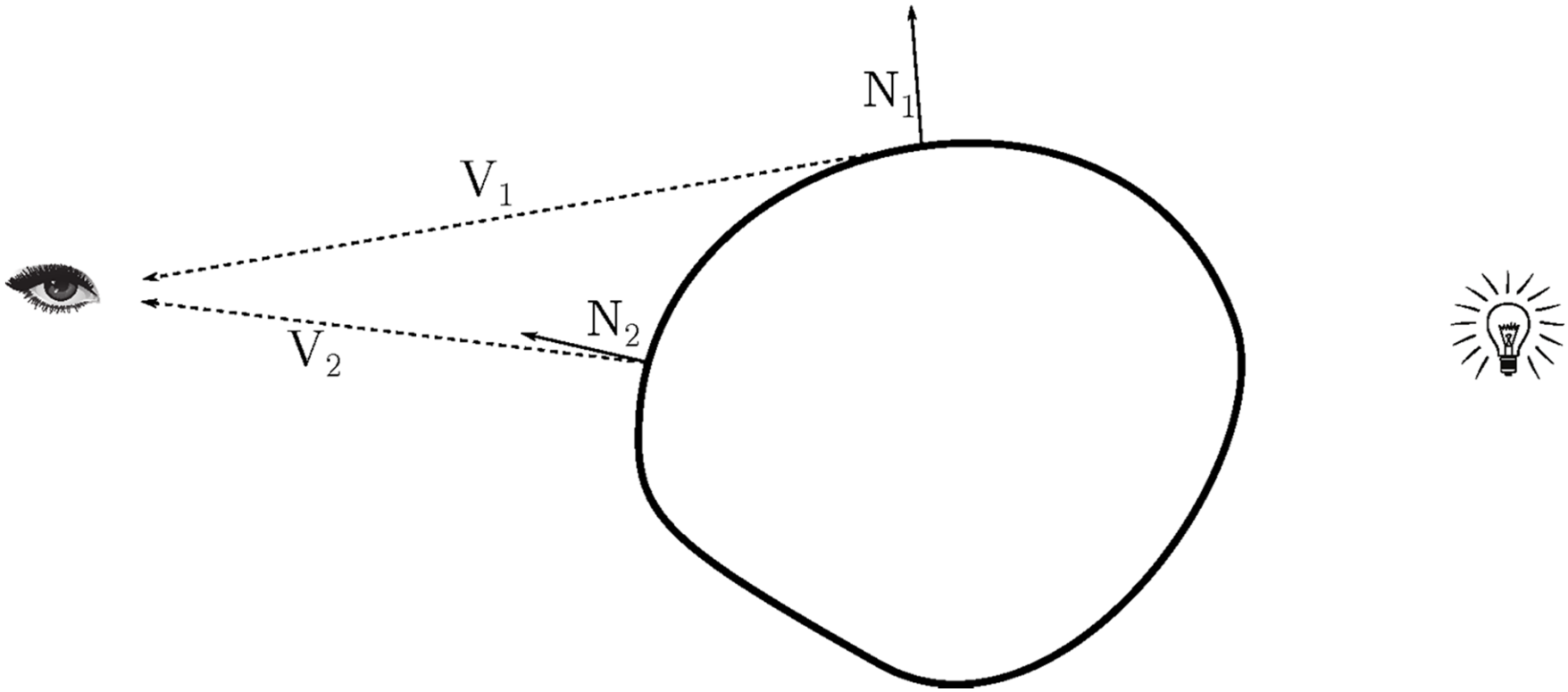

Figure 13.6: Rim lighting vectors

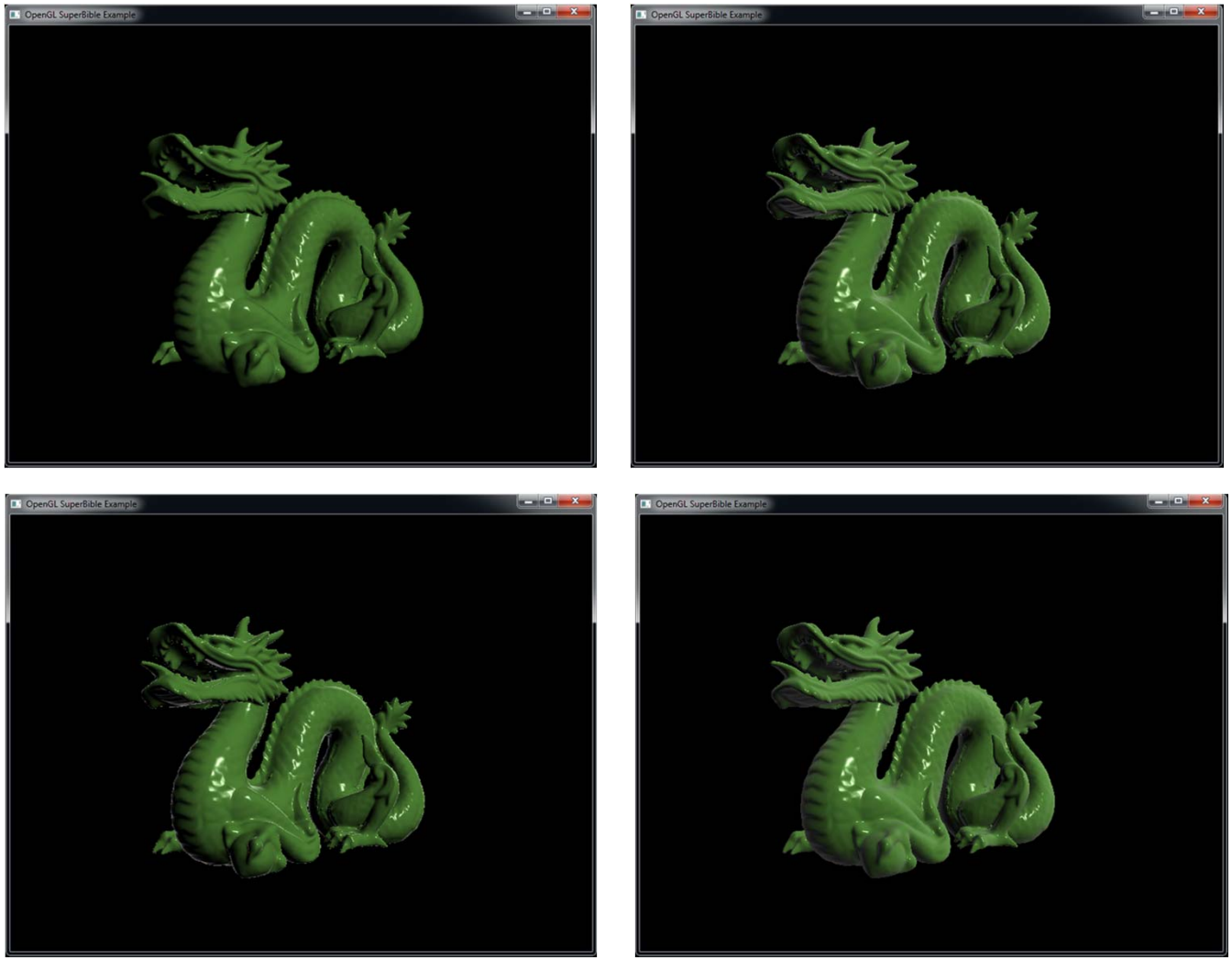

Figure 13.7: Result of rim lighting example

Figure 13.8: Example normal map

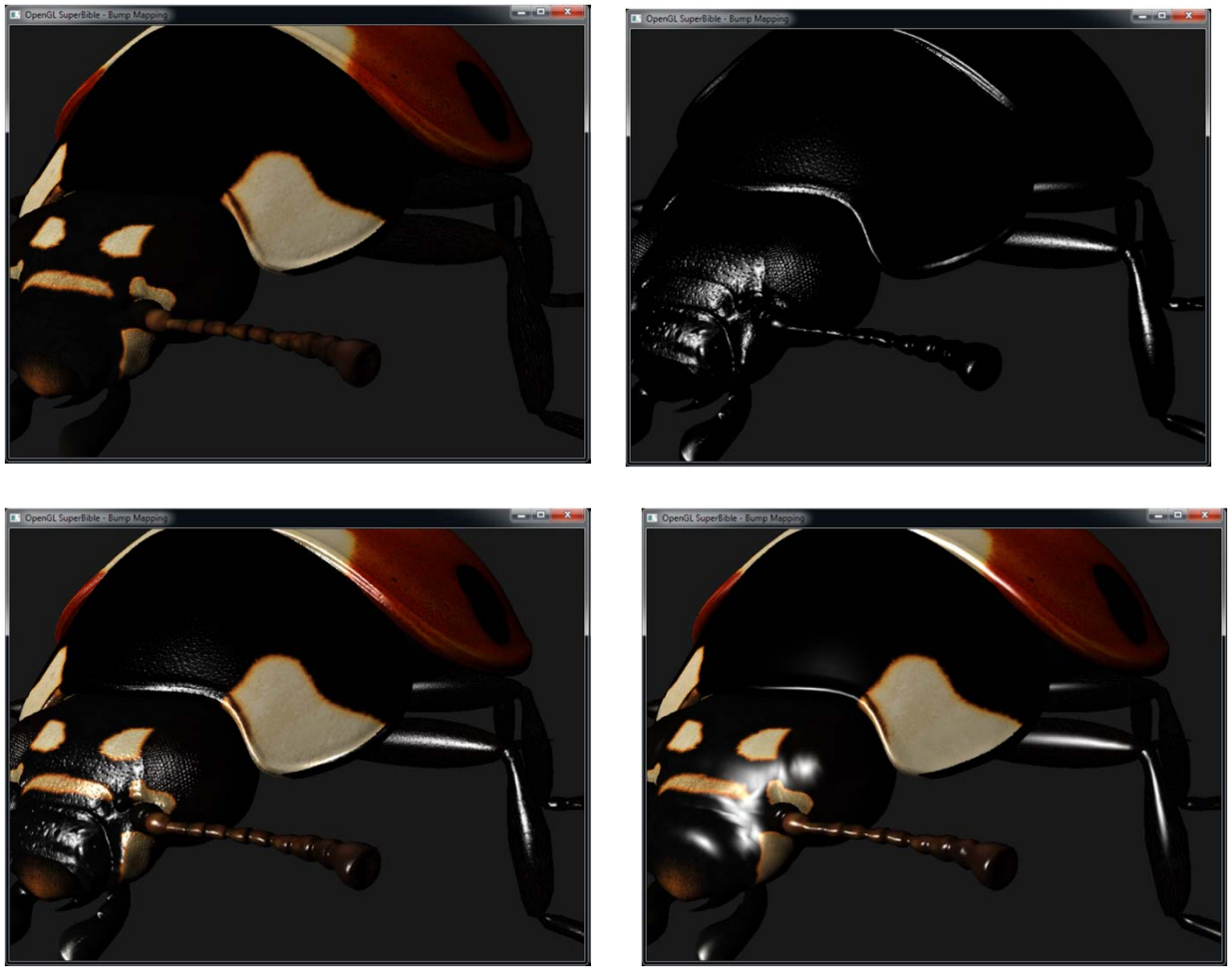

Figure 13.9: Result of normal mapping example

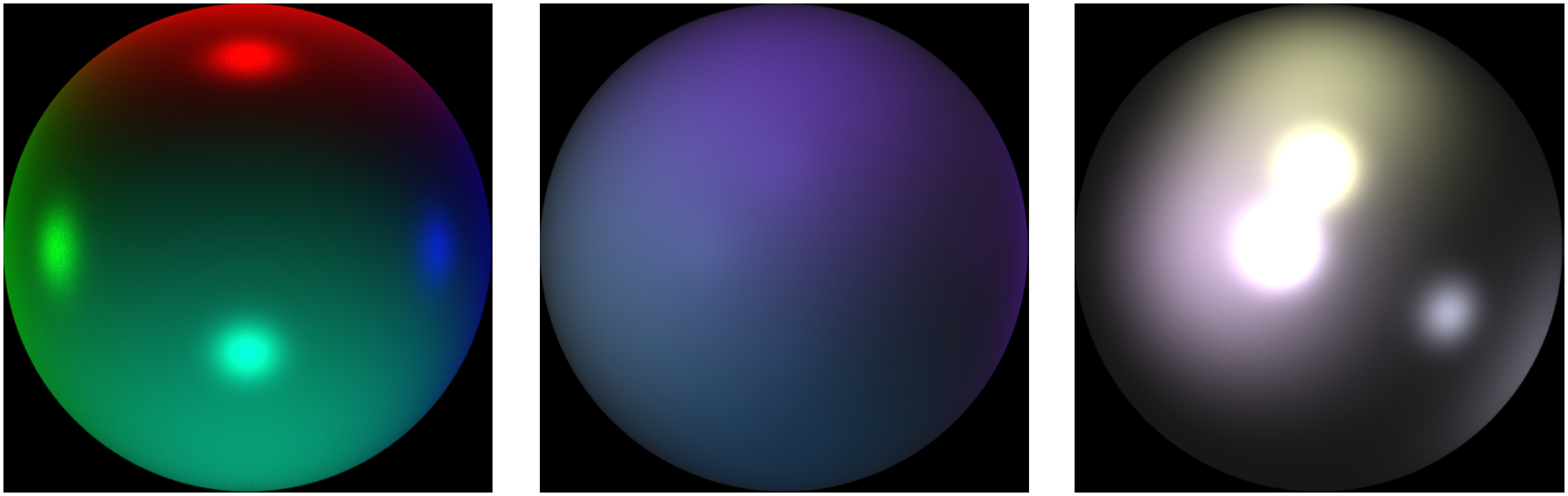

Figure 13.10: A selection of spherical environment maps

Figure 13.11: Result of rendering with spherical environment mapping

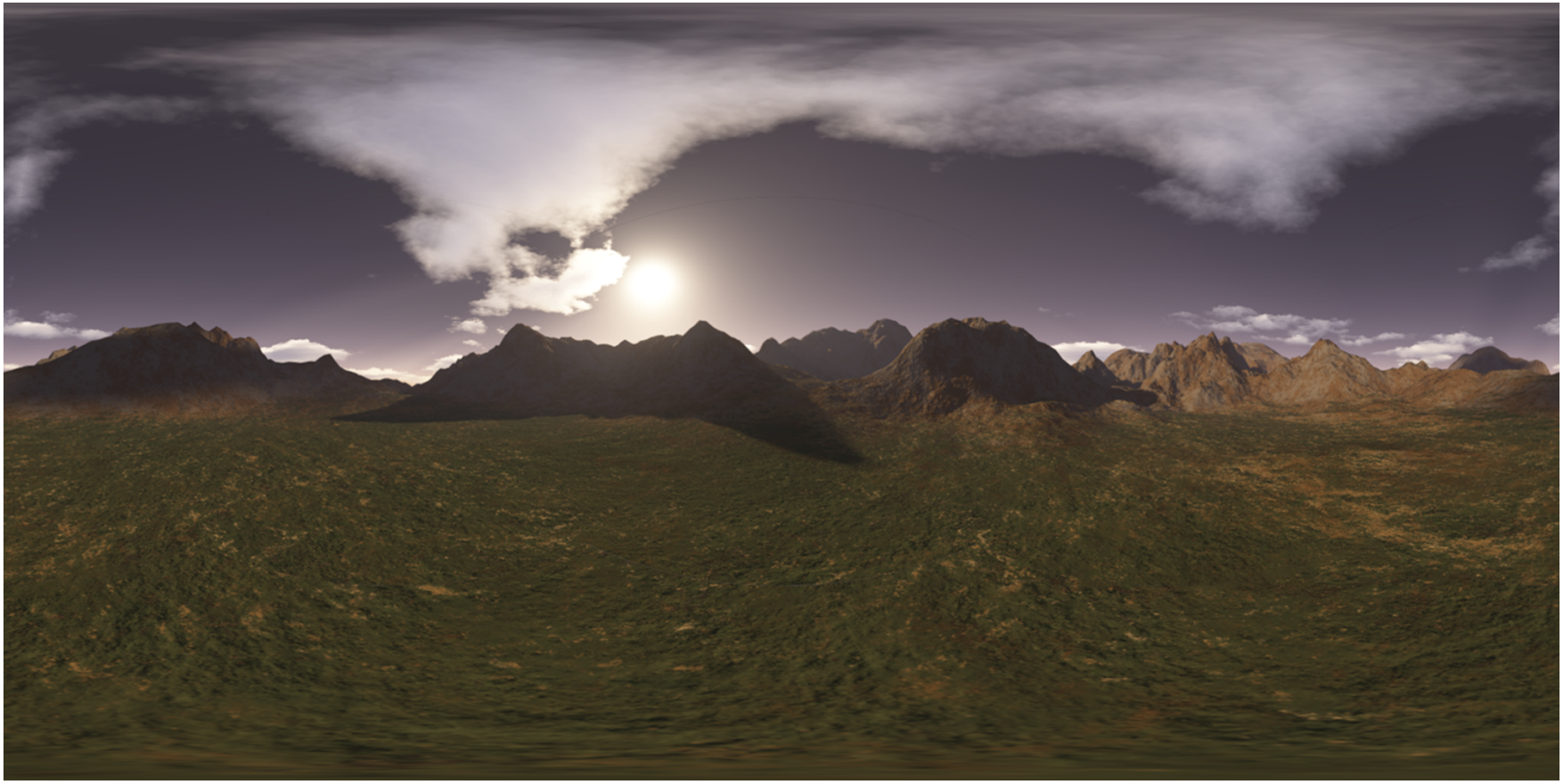

Figure 13.12: Example equirectangular environment map

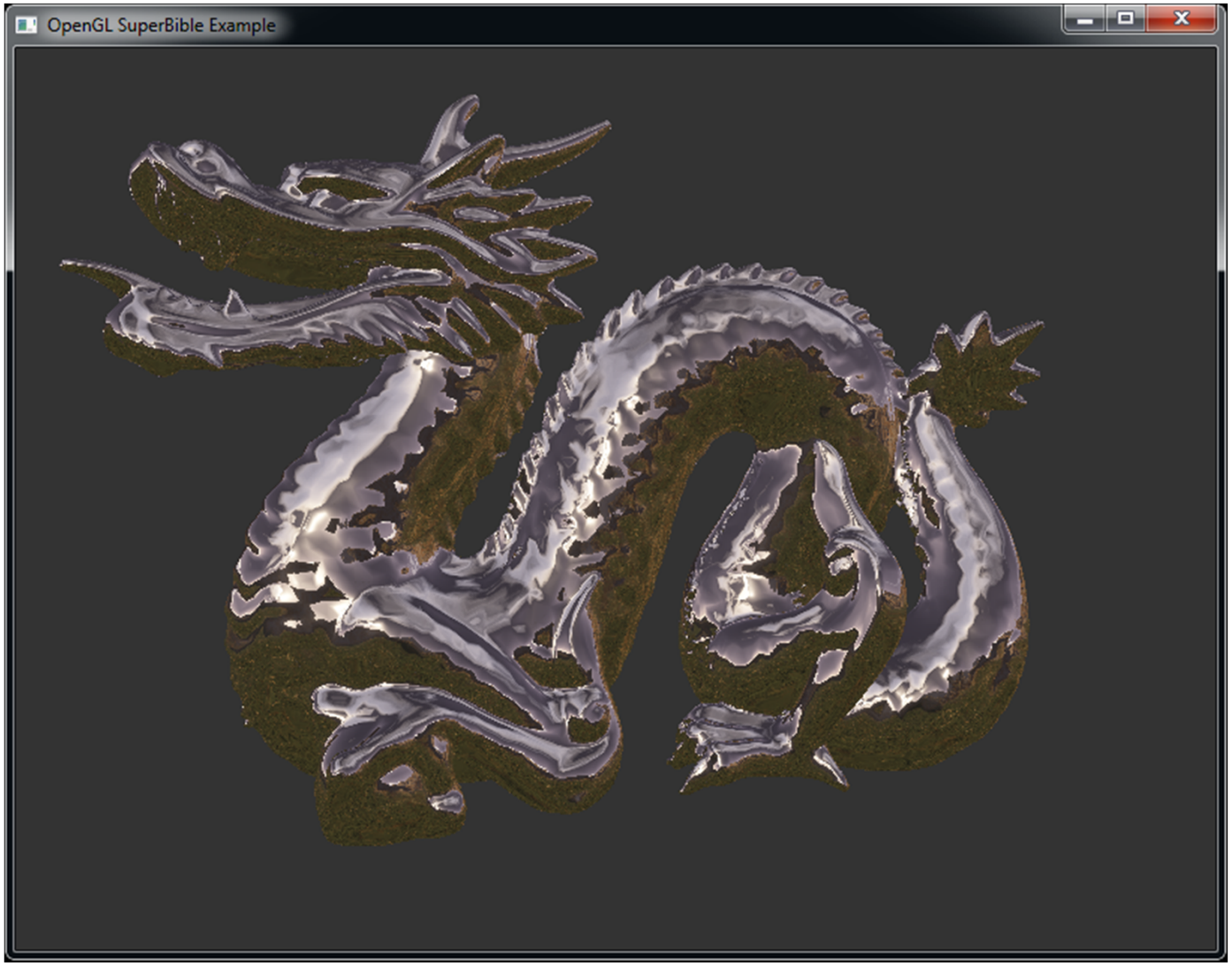

Figure 13.13: Rendering result of equirectangular environment map

Figure 13.14: The layout of six cube faces in the cubemap sample program

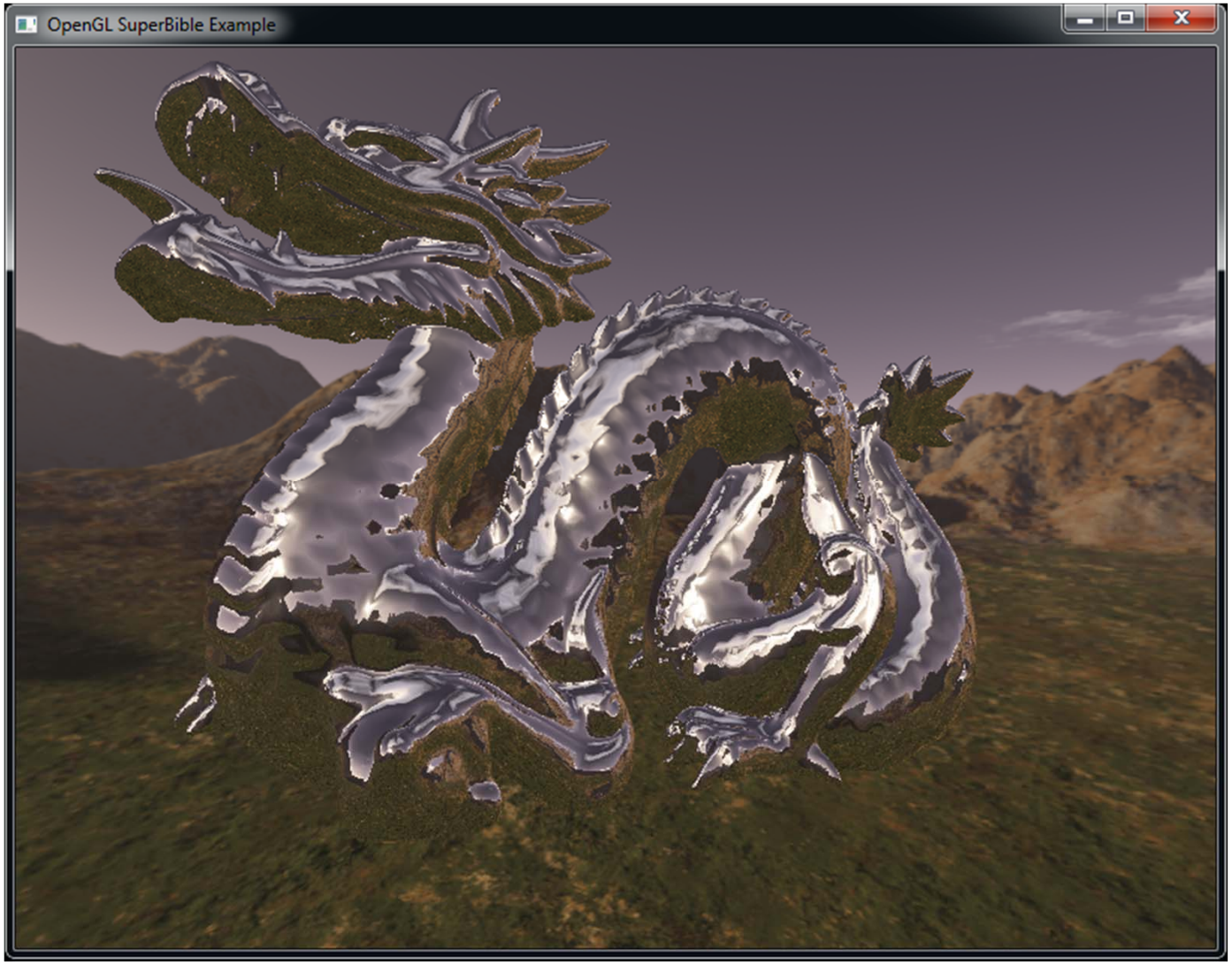

Figure 13.15: Cubemap environment rendering with a skybox

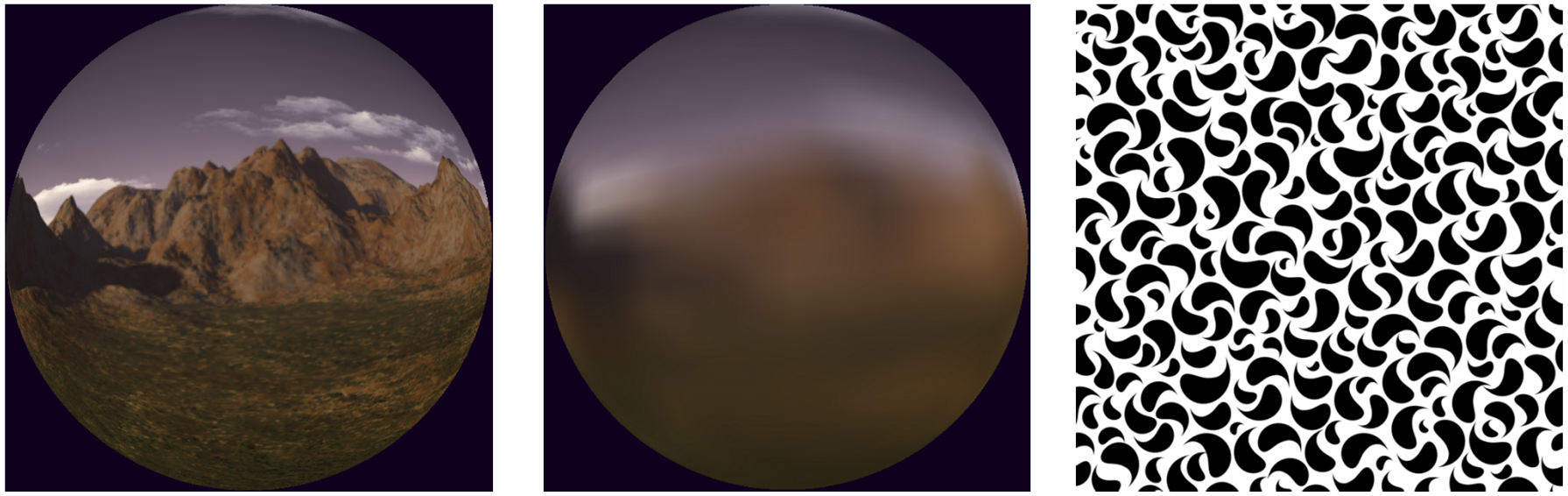

Figure 13.16: Pre-filtered environment maps and gloss map

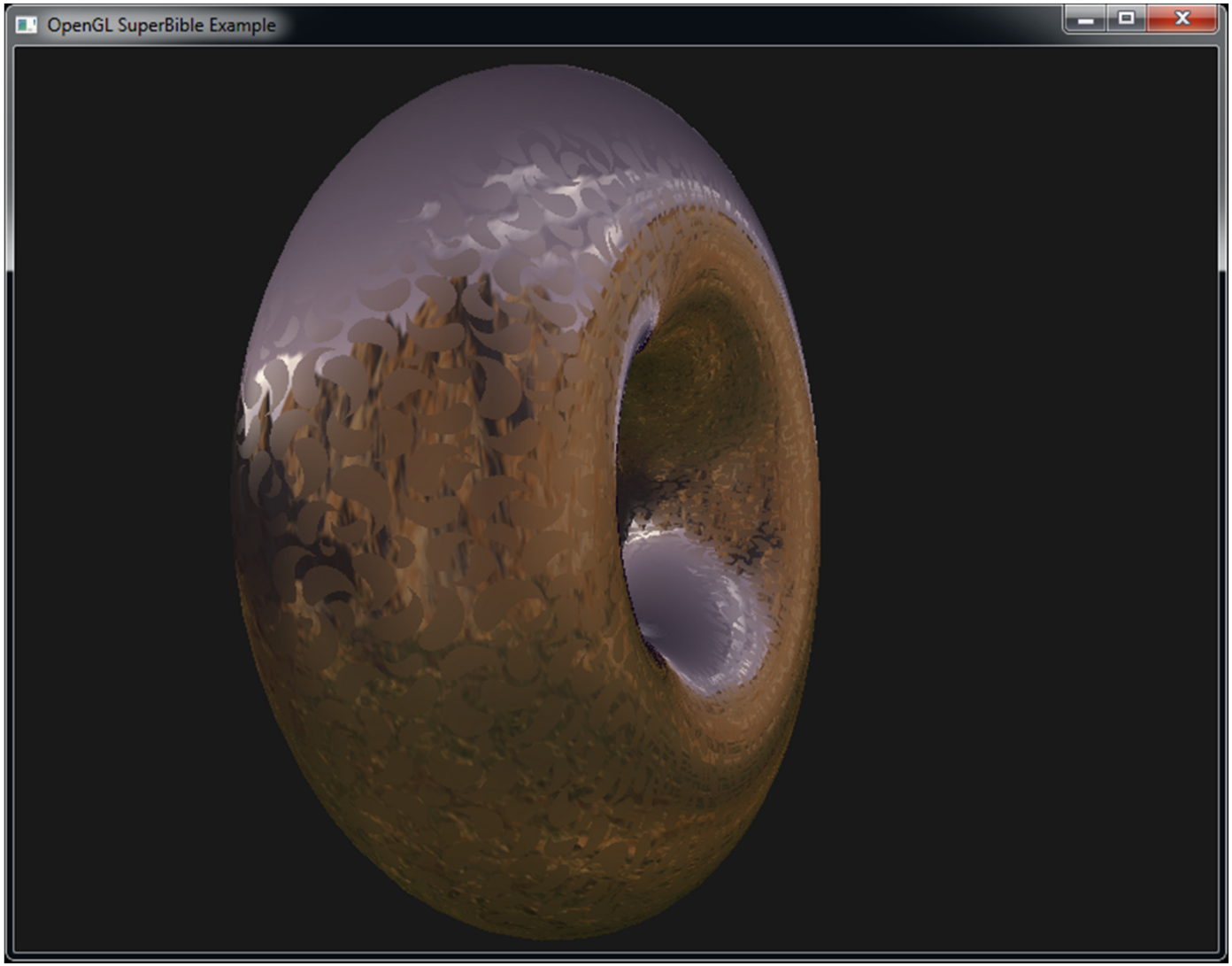

Figure 13.17: Result of per-pixel gloss example

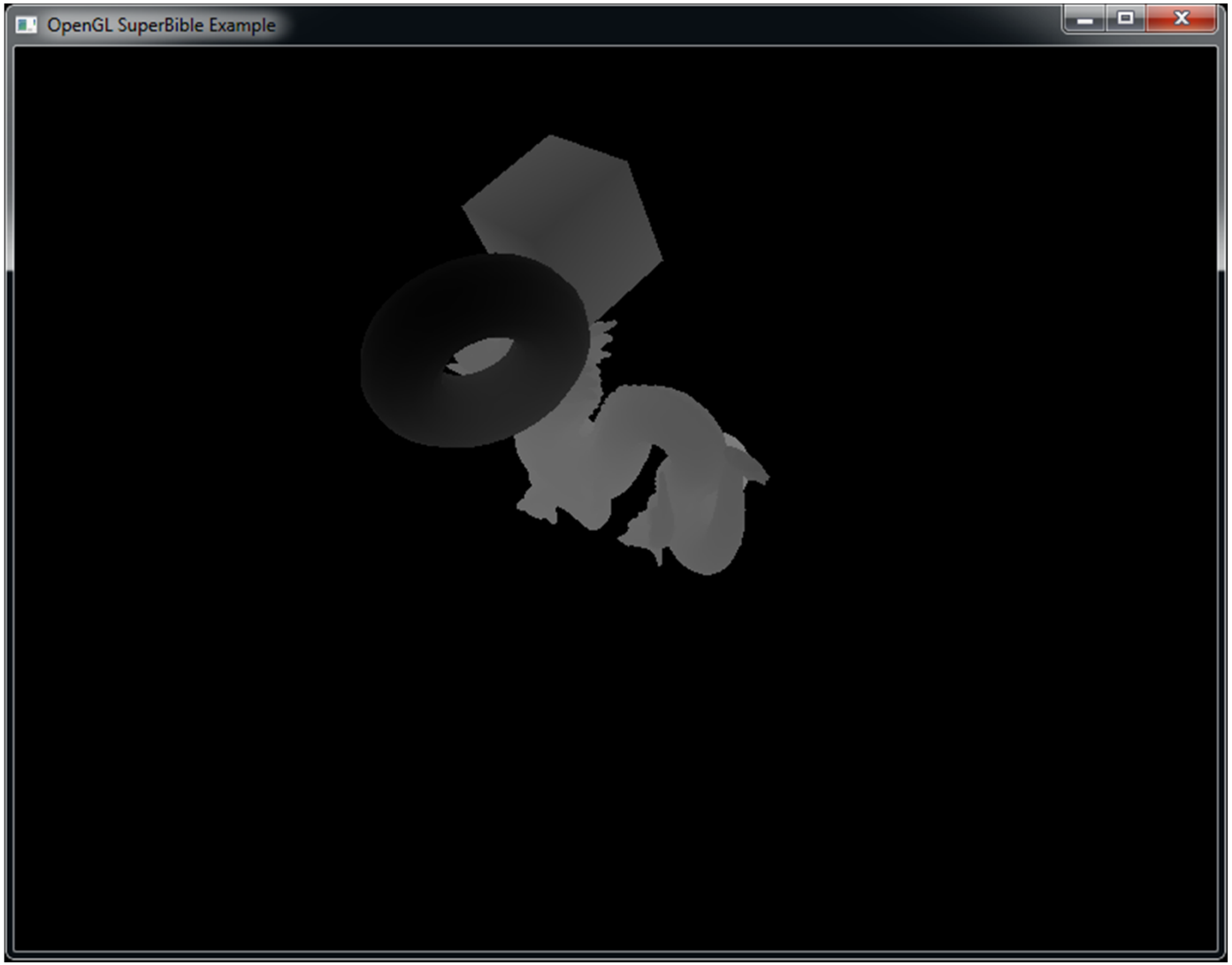

Figure 13.18: Depth as seen from a light

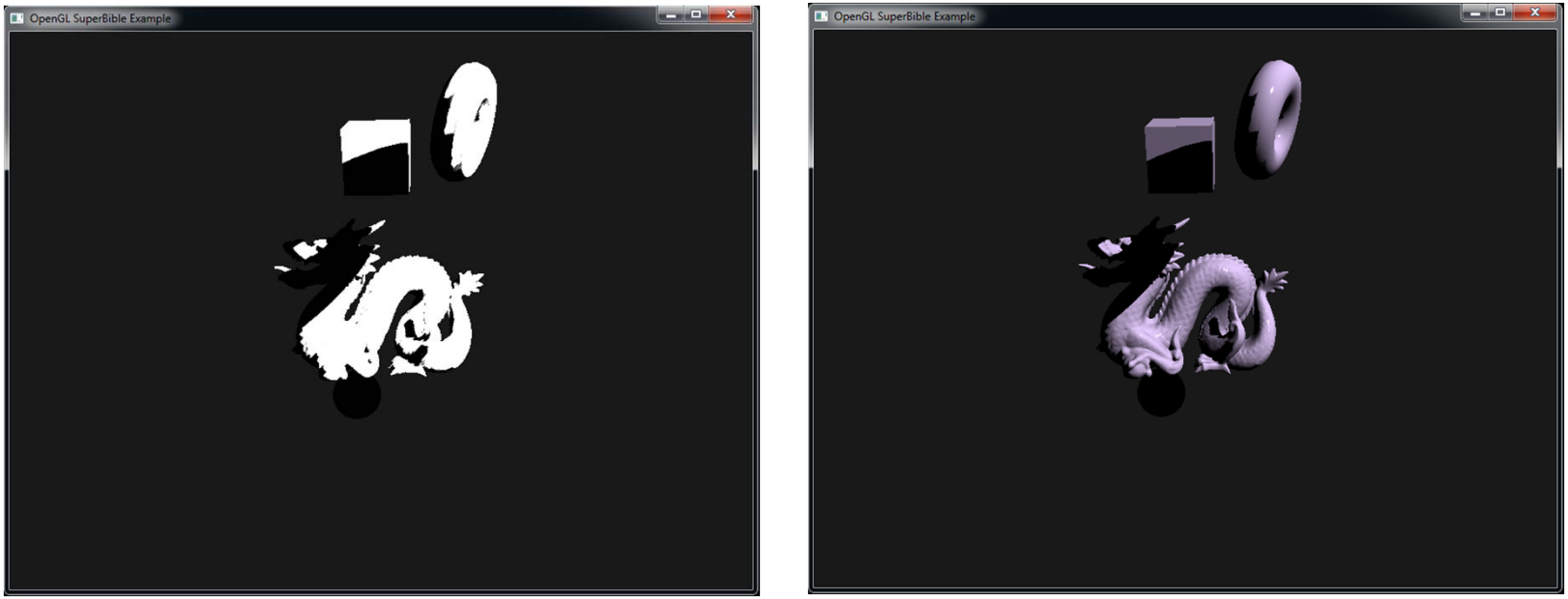

Figure 13.19: Results of rendering with shadow maps

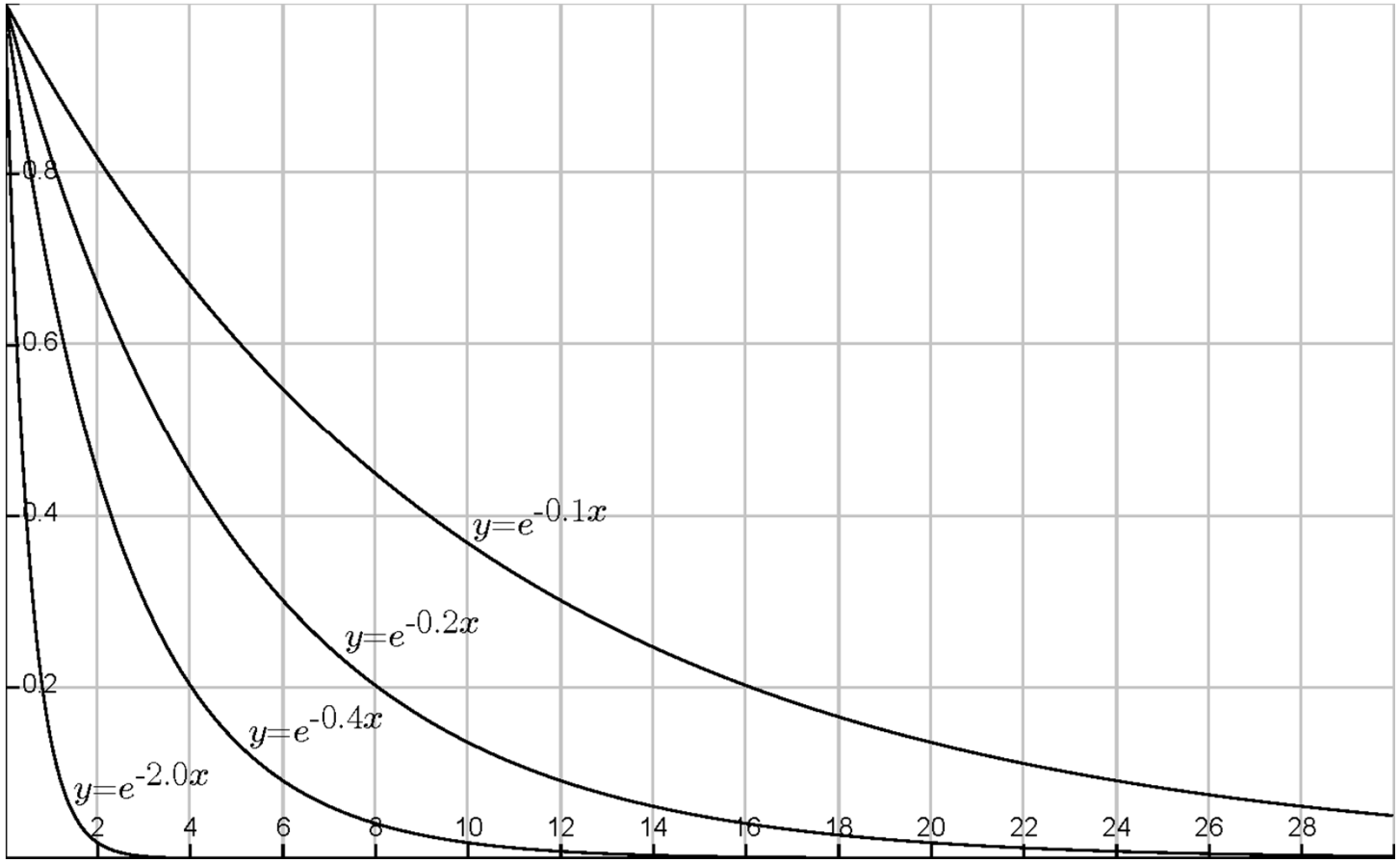

Figure 13.20: Graphs of exponential decay

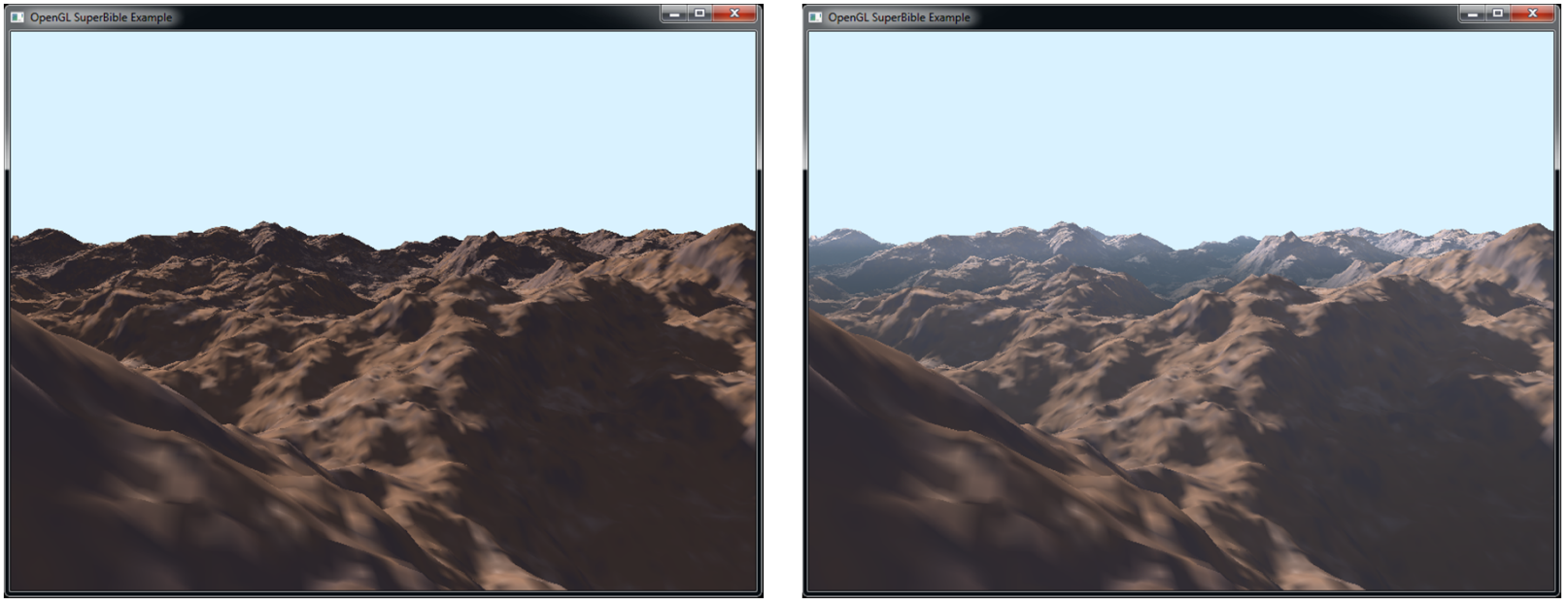

Figure 13.21: Applying fog to tessellated landscape

Figure 13.22: A one-dimensional color lookup table

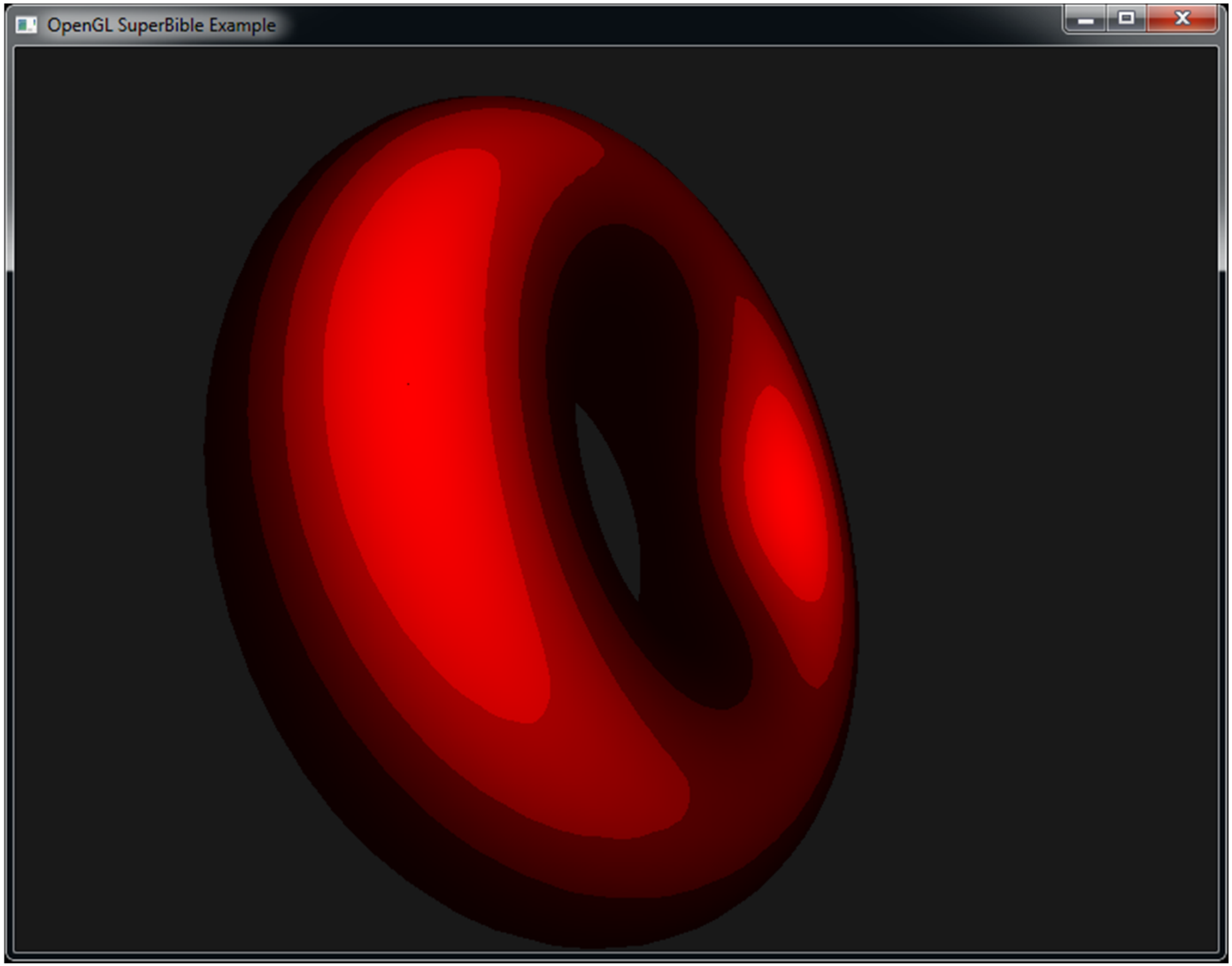

Figure 13.23: A toon-shaded torus

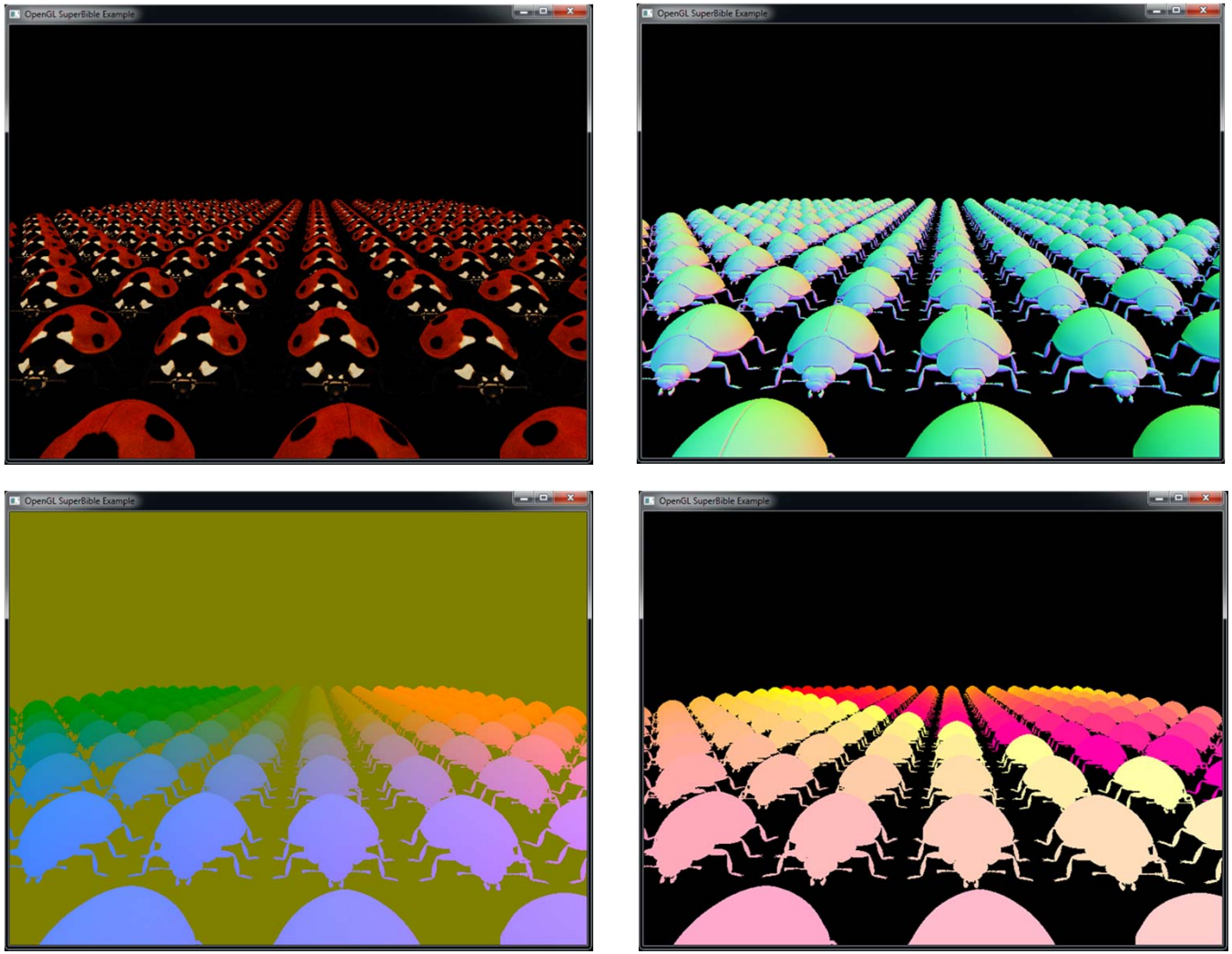

Figure 13.24: Visualizing components of a G-buffer

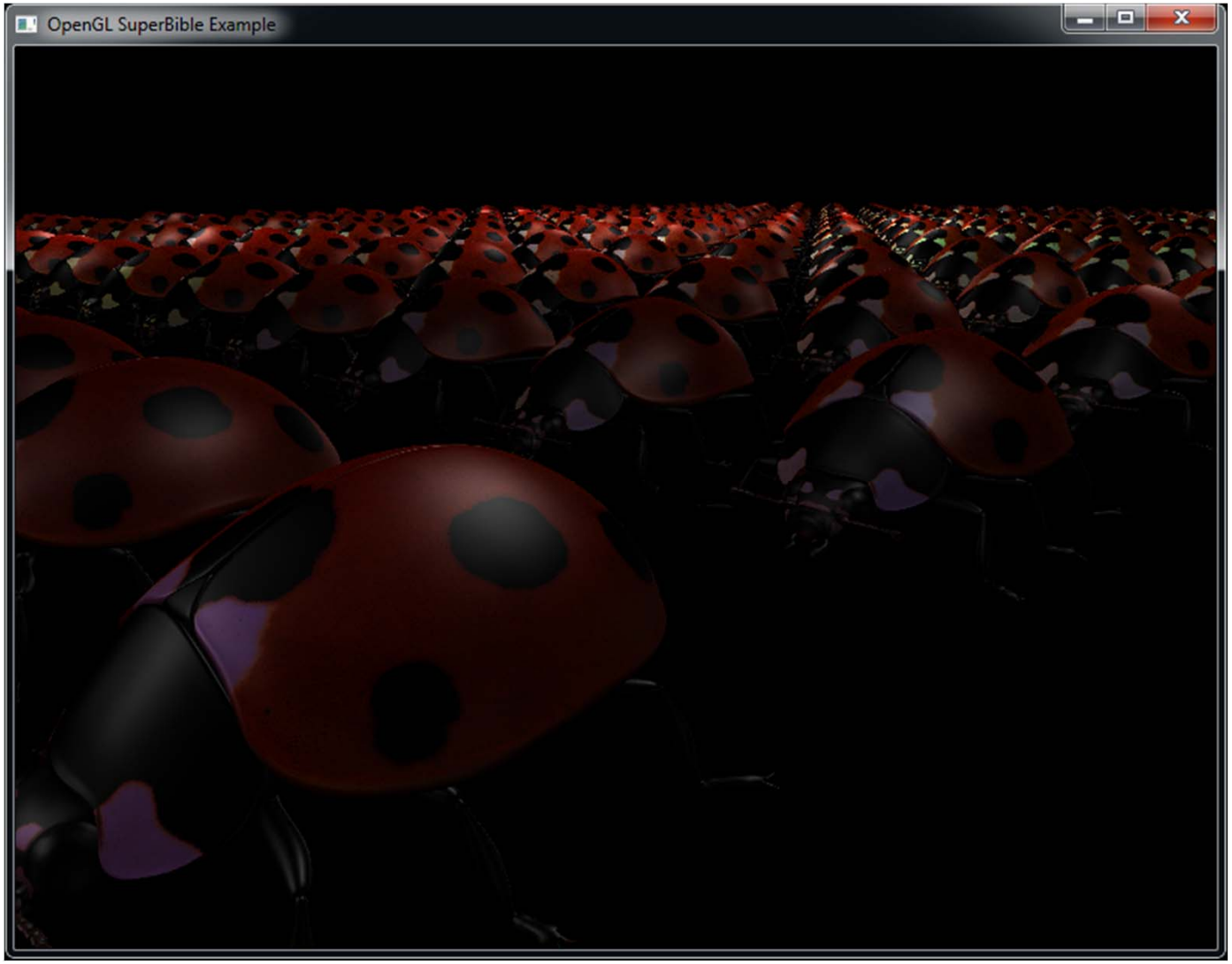

Figure 13.25: Final rendering using deferred shading

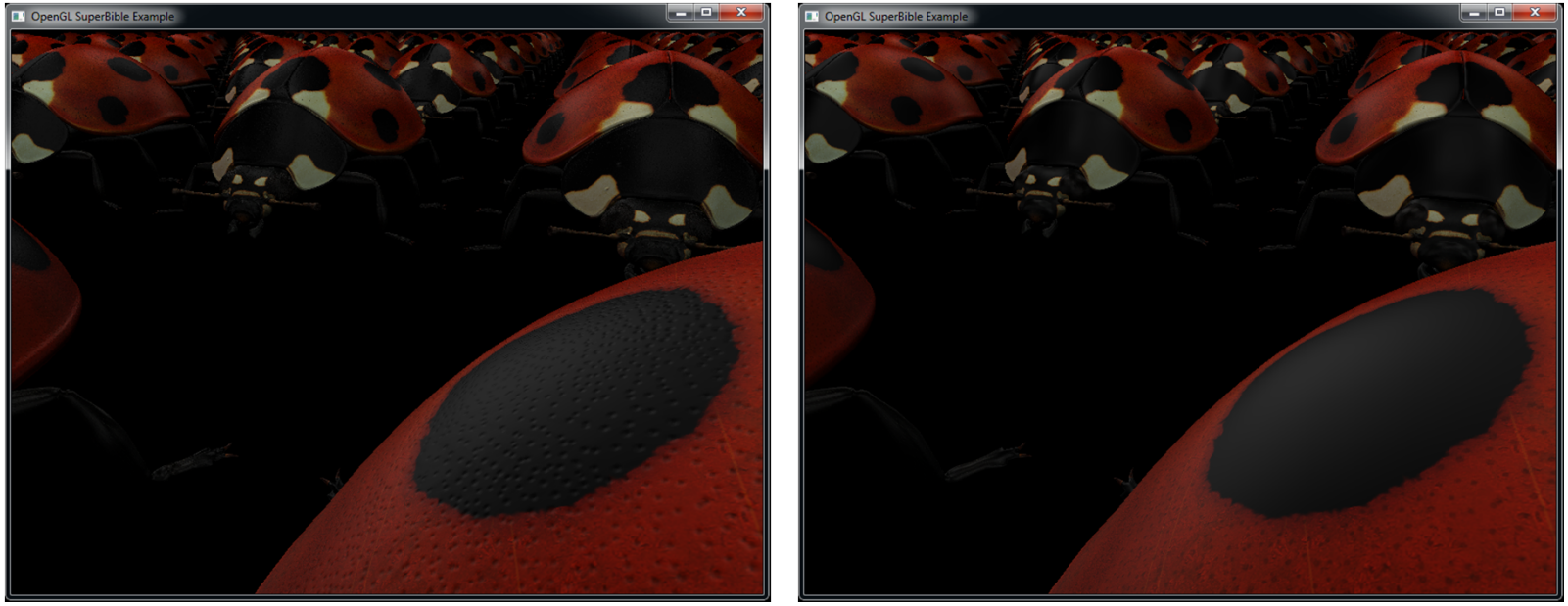

Figure 13.26: Deferred shading with and without normal maps

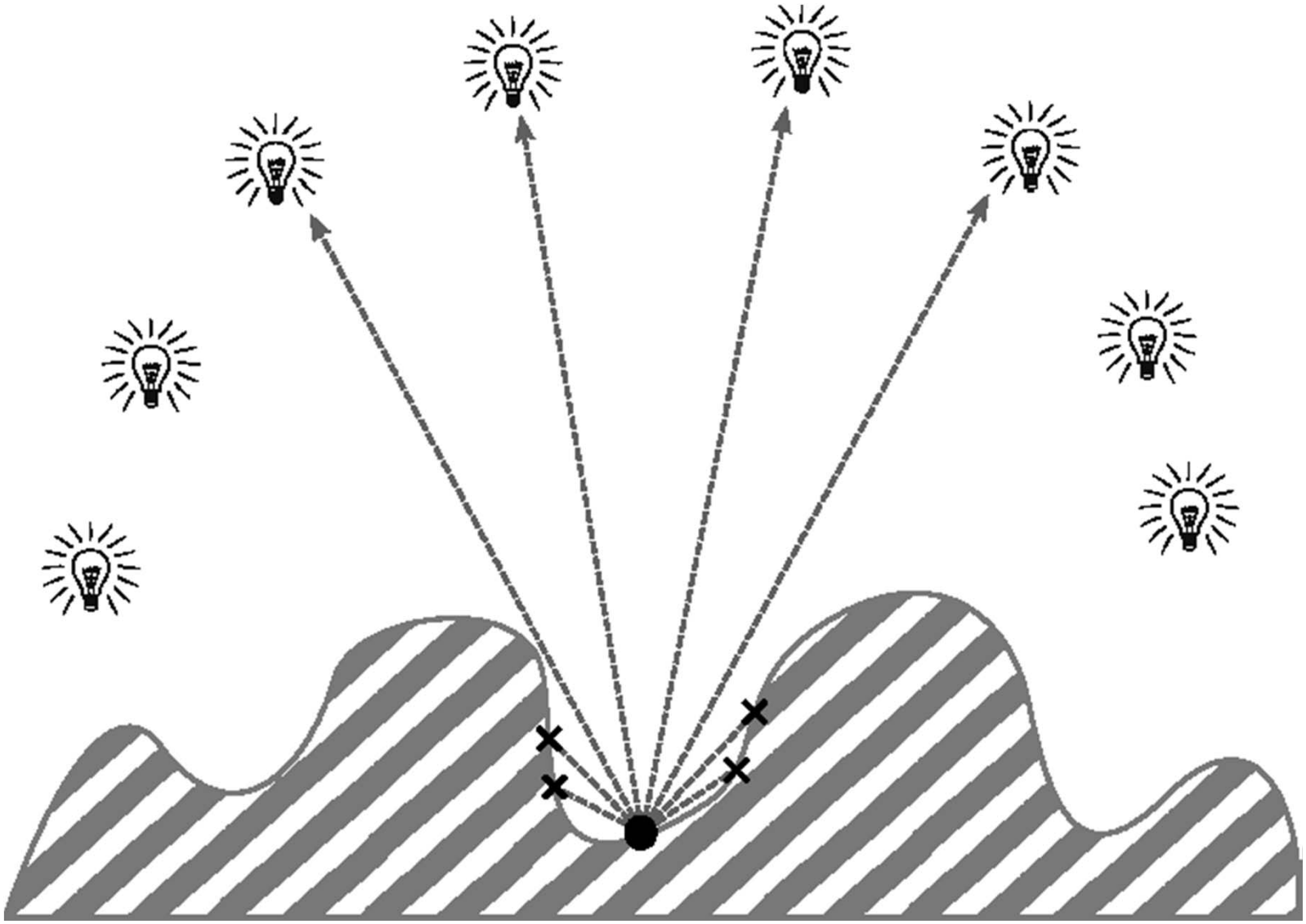

Figure 13.27: Bumpy surface occluding points

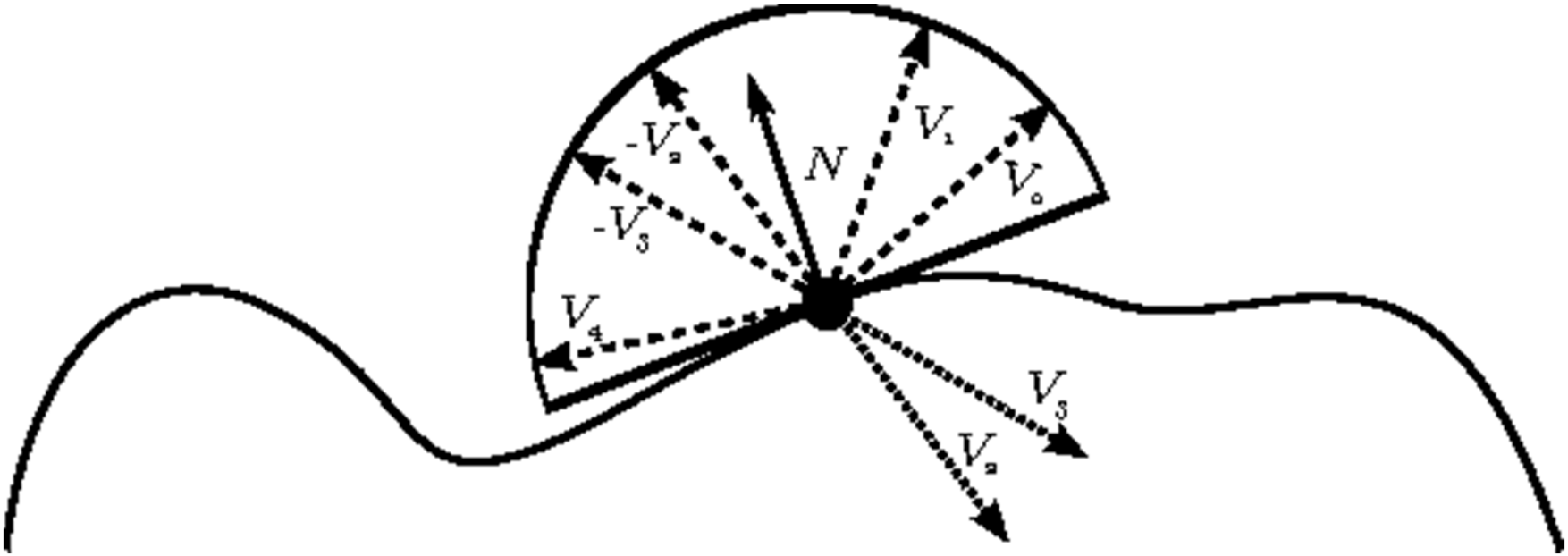

Figure 13.28: Selection of random vector in an oriented hemisphere

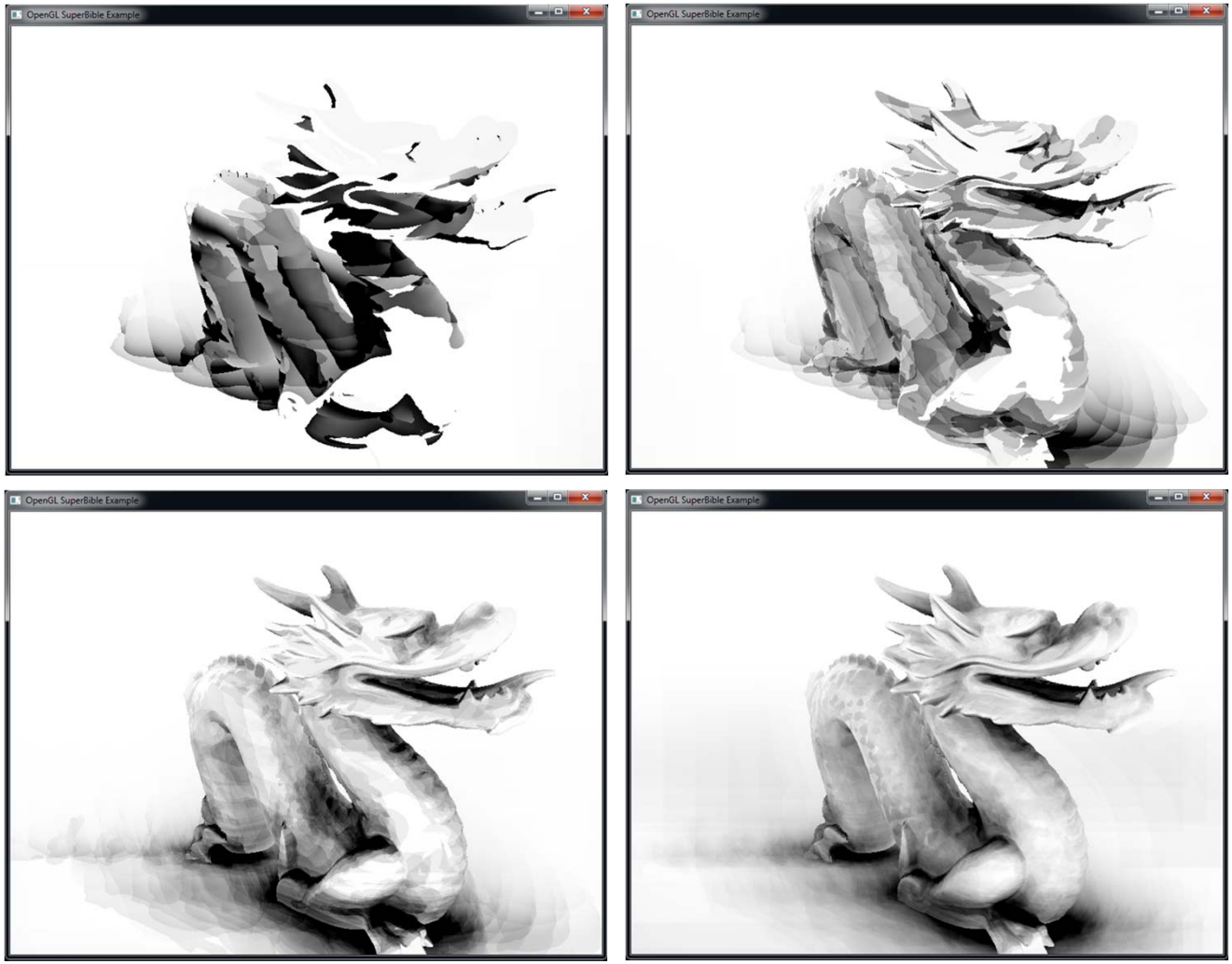

Figure 13.29: Effect of increasing direction count on ambient occlusion

Figure 13.30: Effect of introducing noise in ambient occlusion

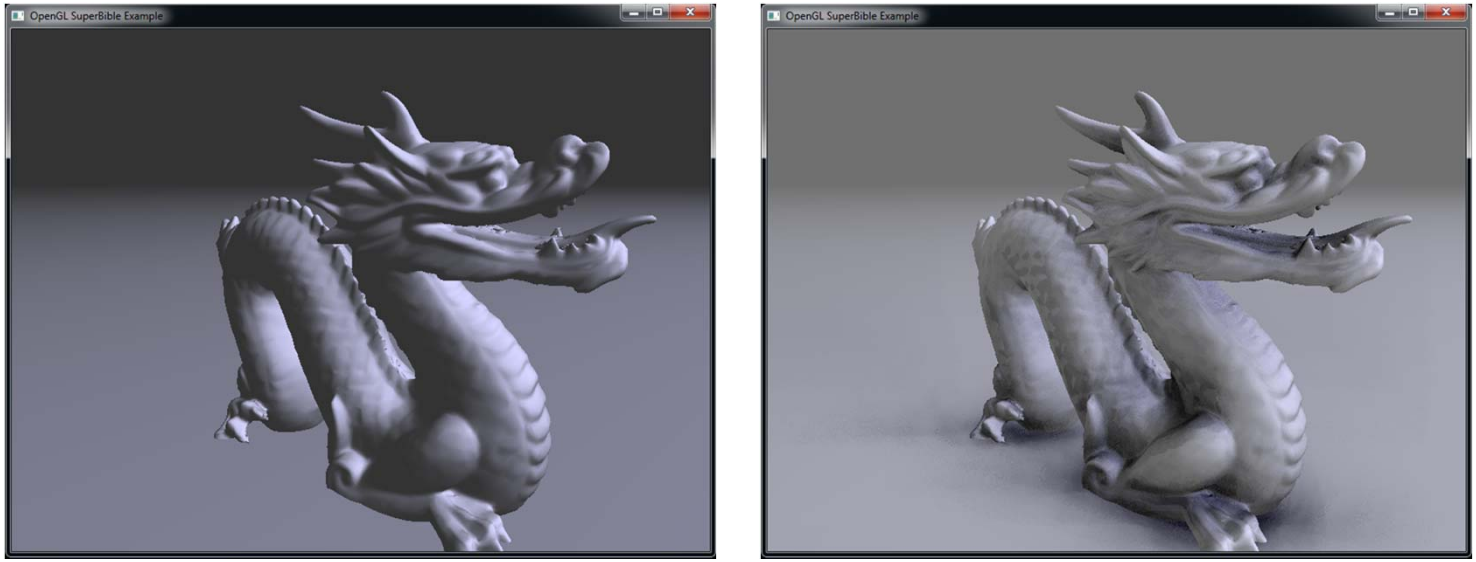

Figure 13.31: Ambient occlusion applied to a rendered scene

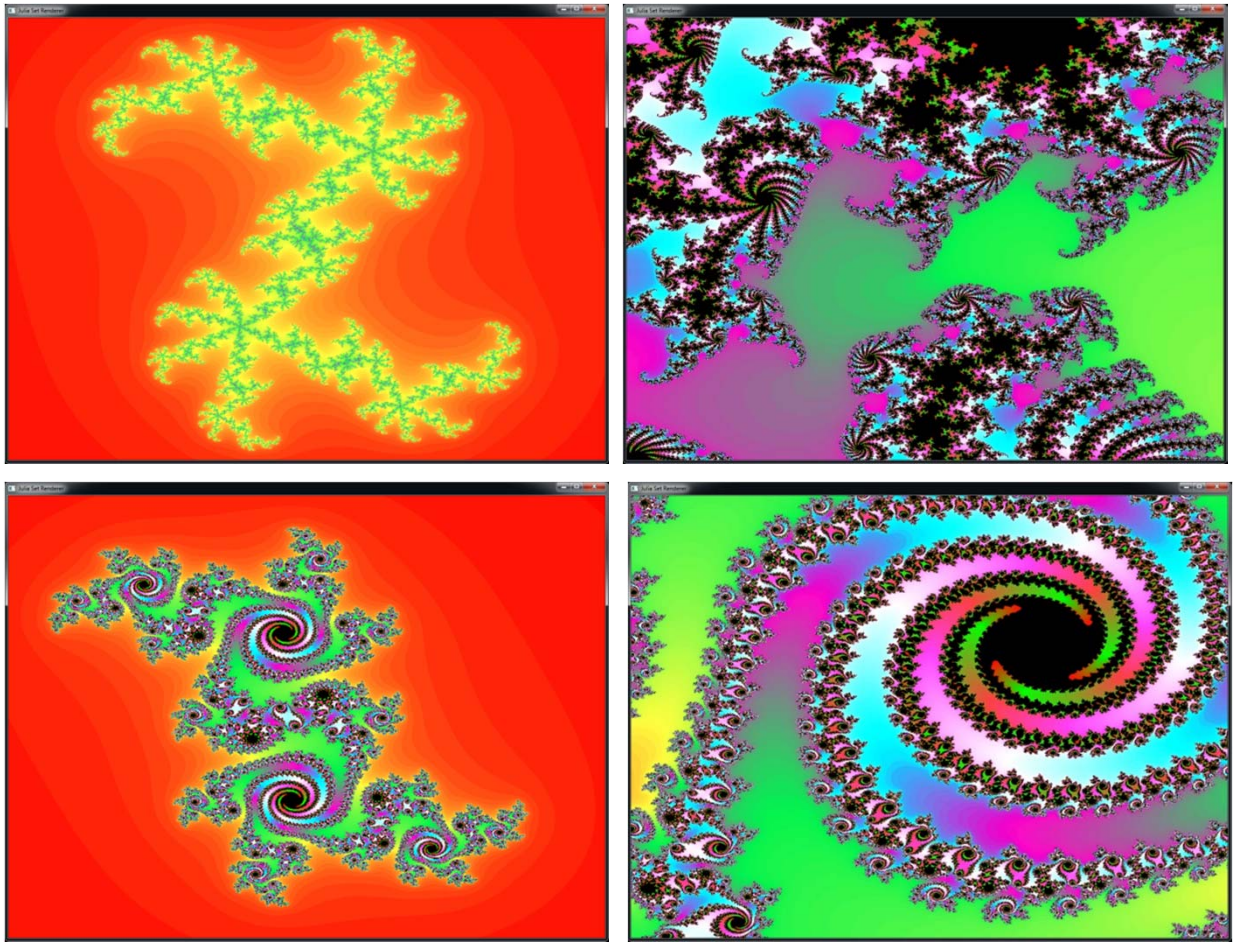

Figure 13.32: A few frames from the Julia set animation

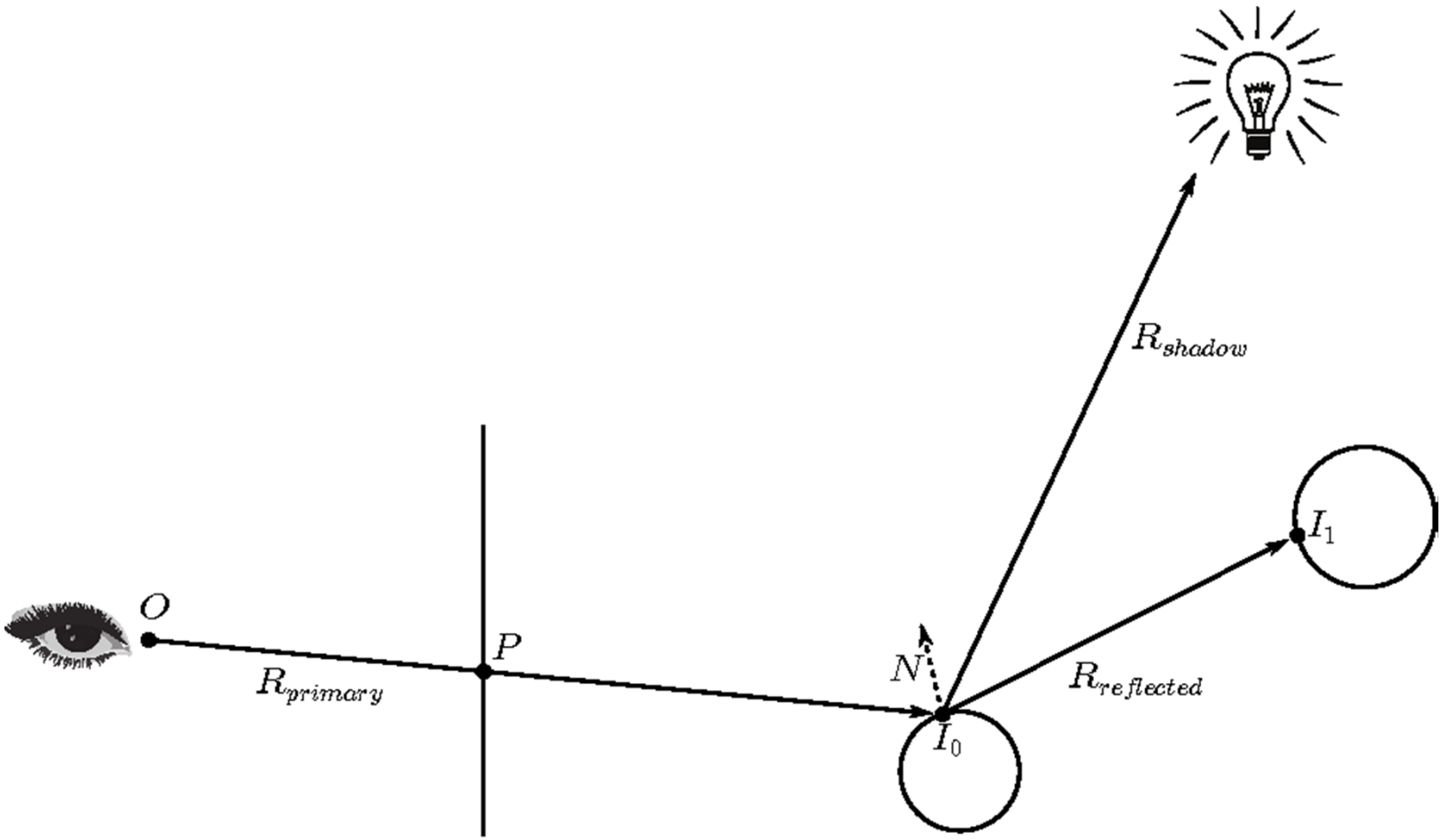

Figure 13.33: Simplified 2D illustration of ray tracing

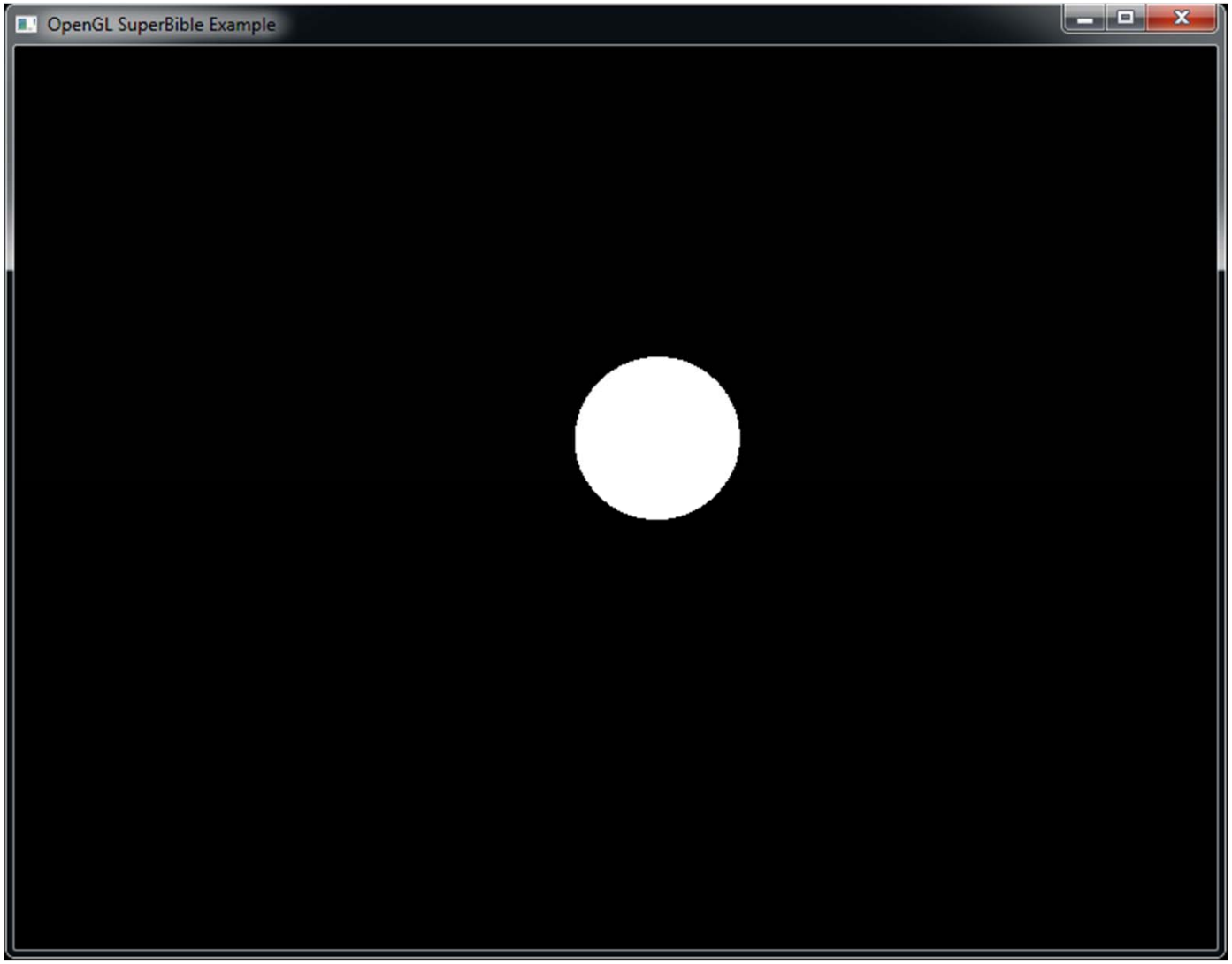

Figure 13.34: Our first ray-traced sphere

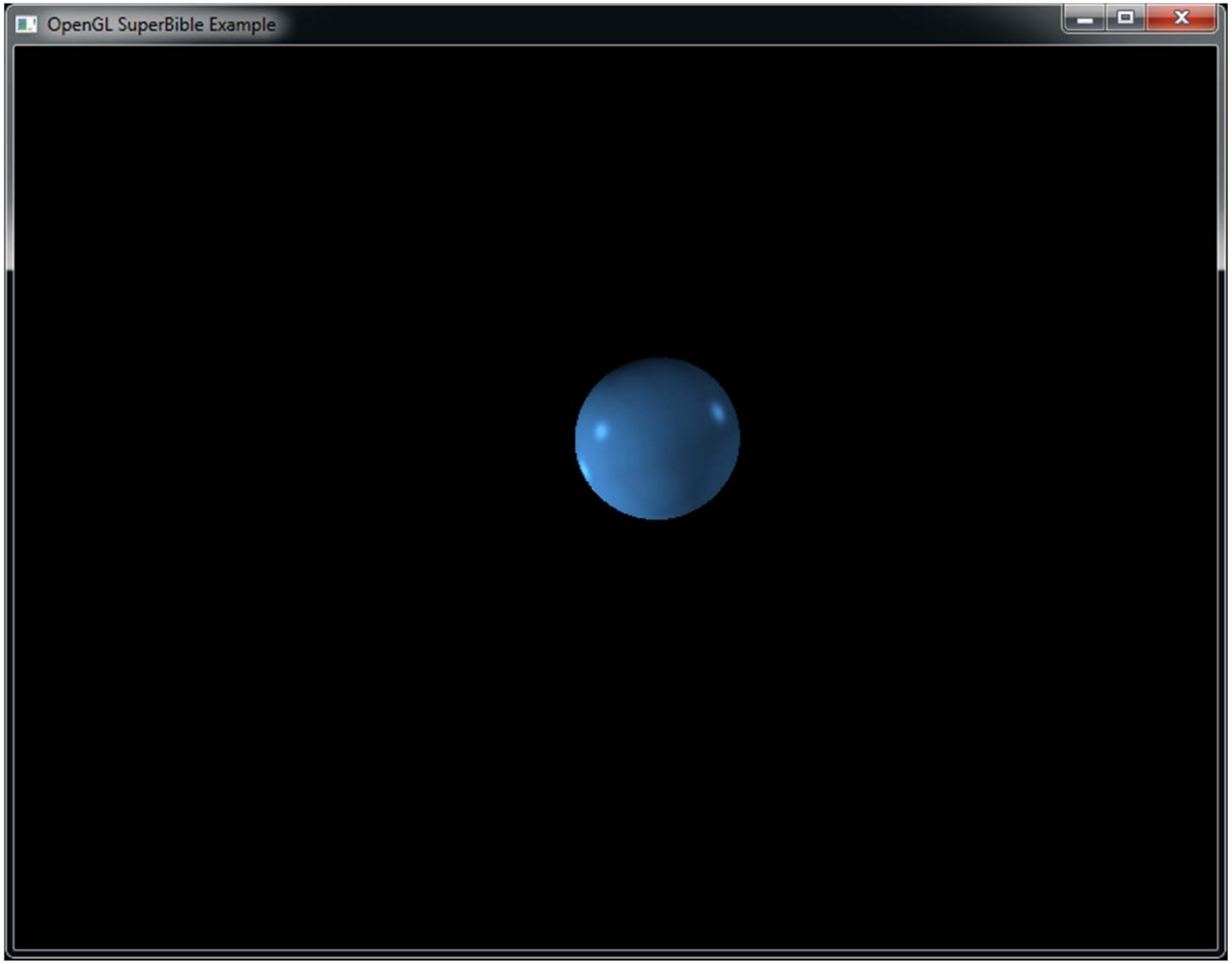

Figure 13.35: Our first Lit ray-traced sphere

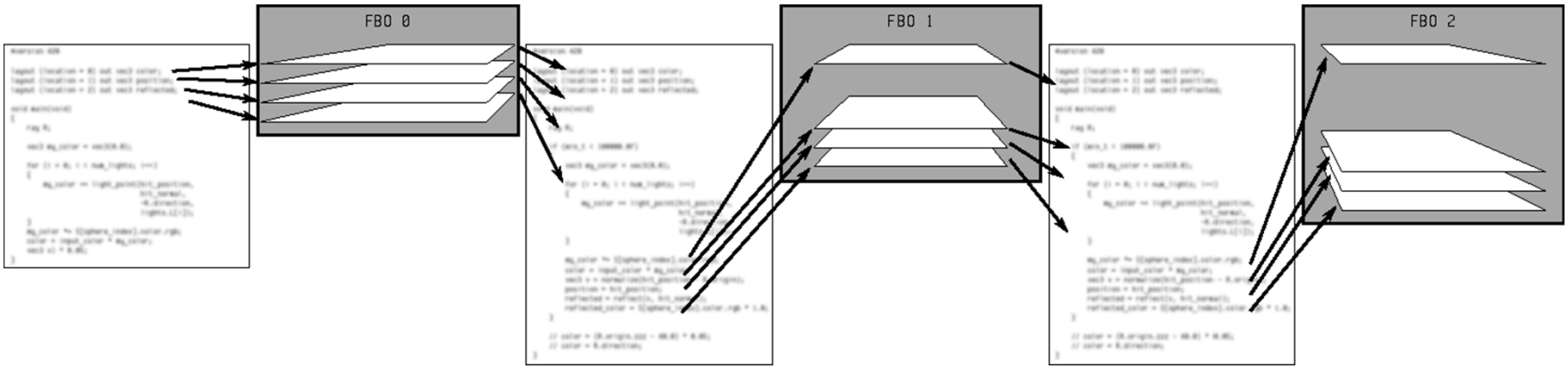

Figure 13.36: Implementing a stack using framebuffer objects

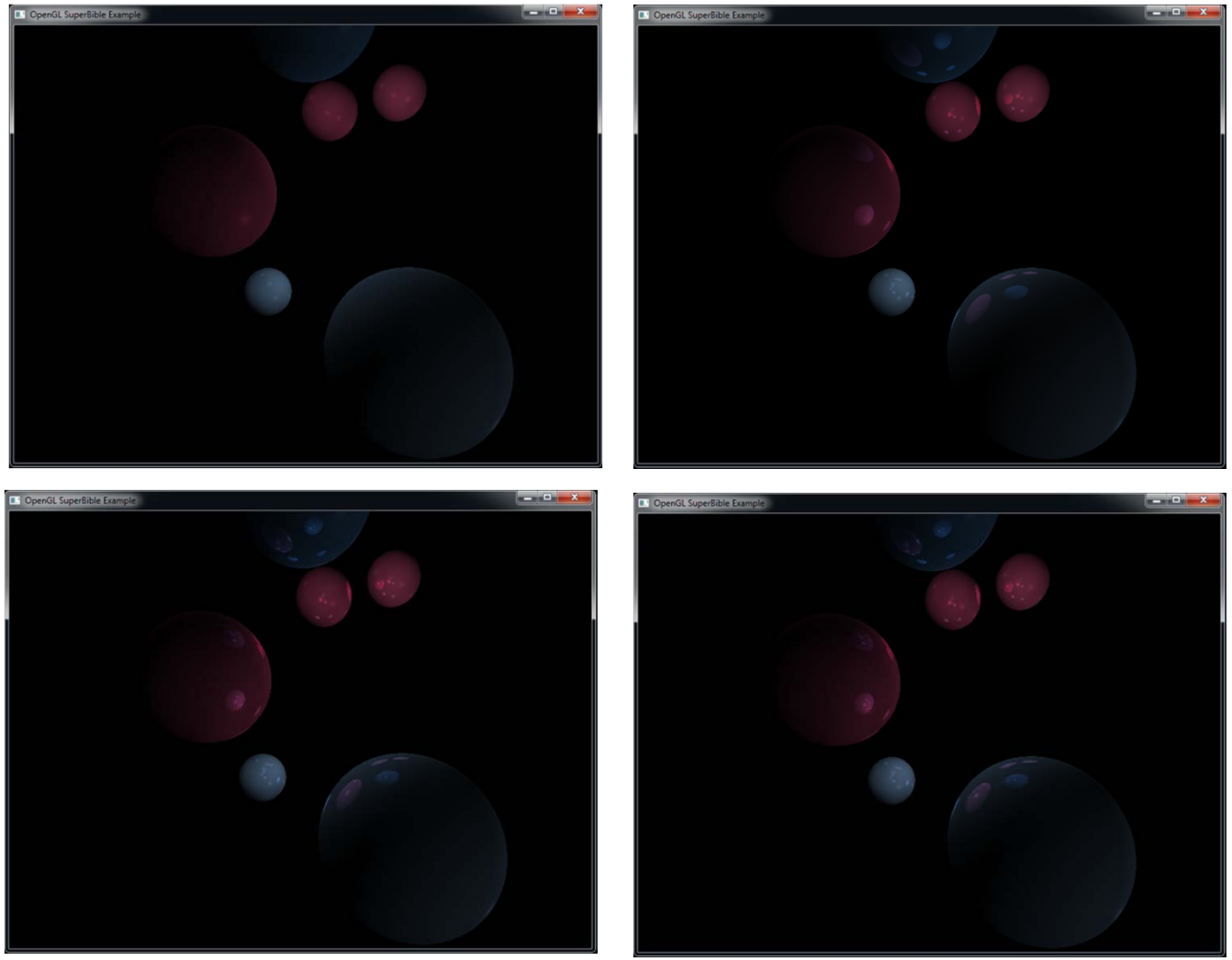

Figure 13.37: Ray-traced spheres with increasing ray bounces

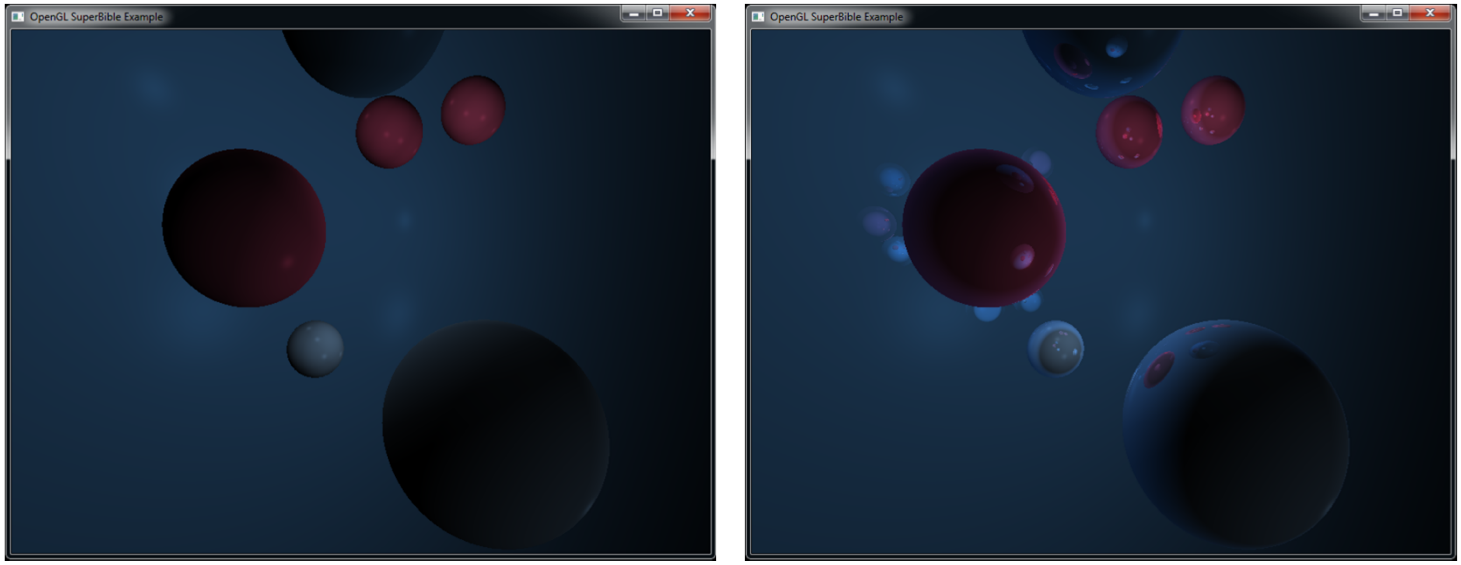

Figure 13.38: Adding a ray-traced plane

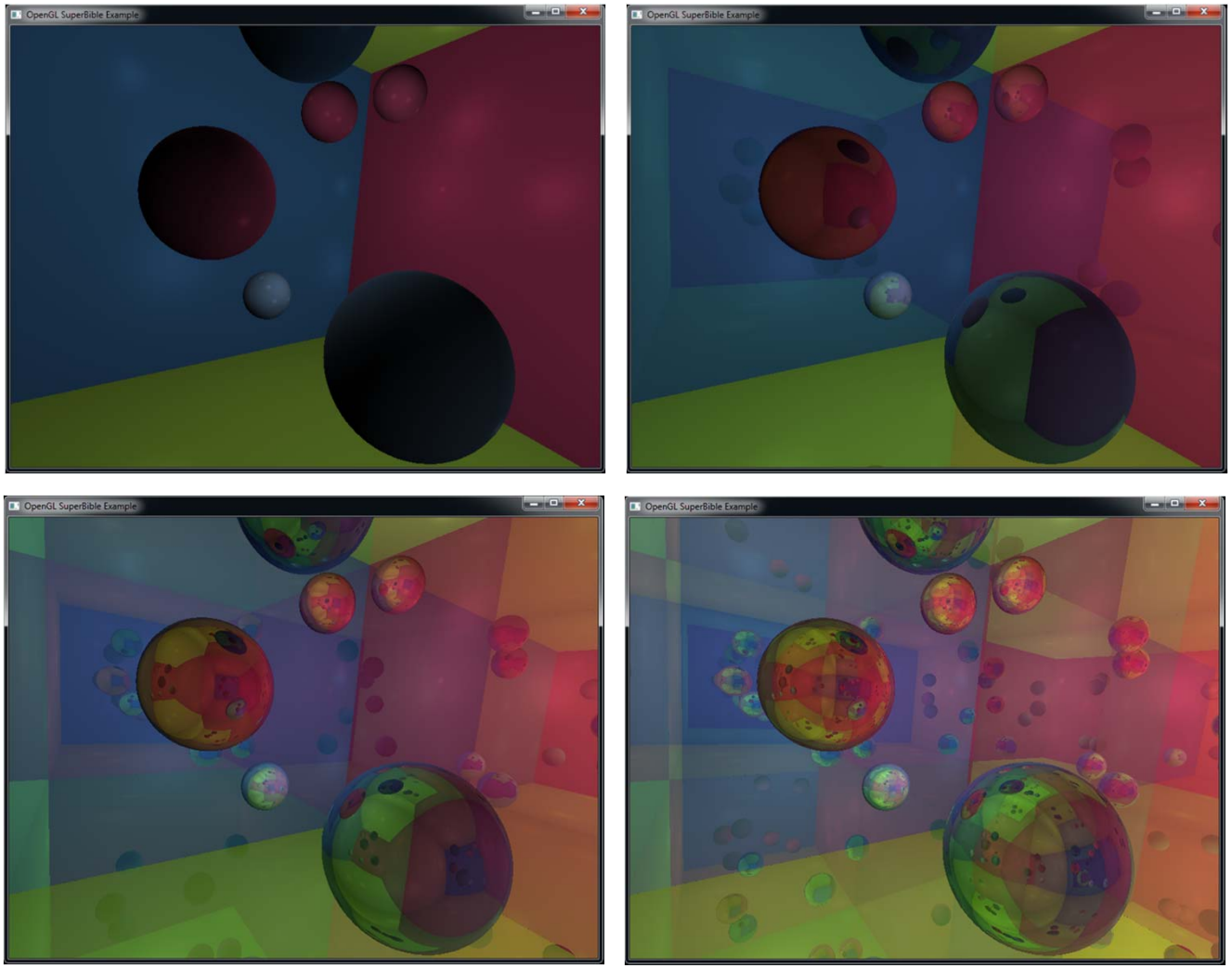

Figure 13.39: Ray-traced spheres in a box

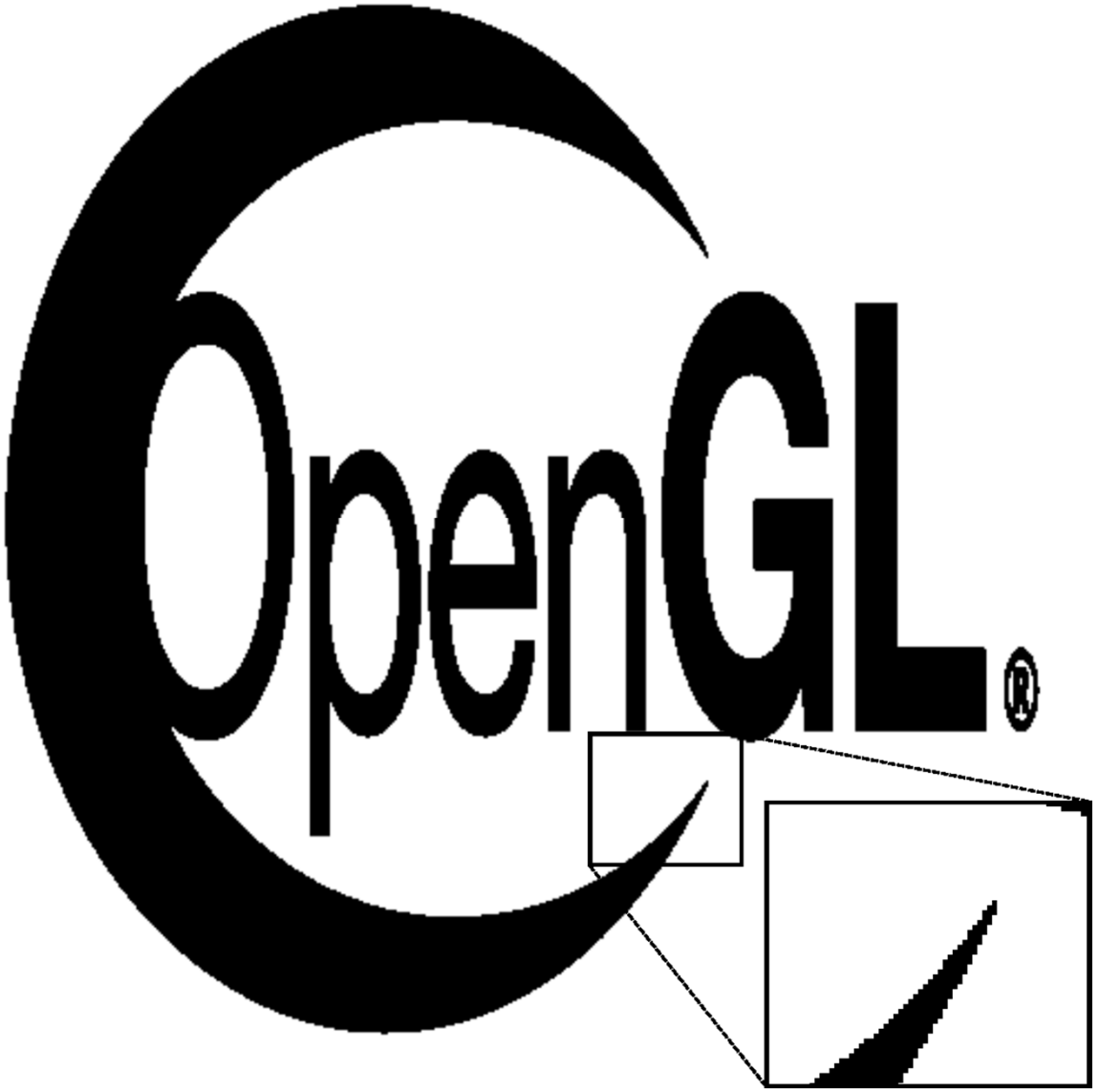

Figure 13.40: Low-resolution texture used for a logo

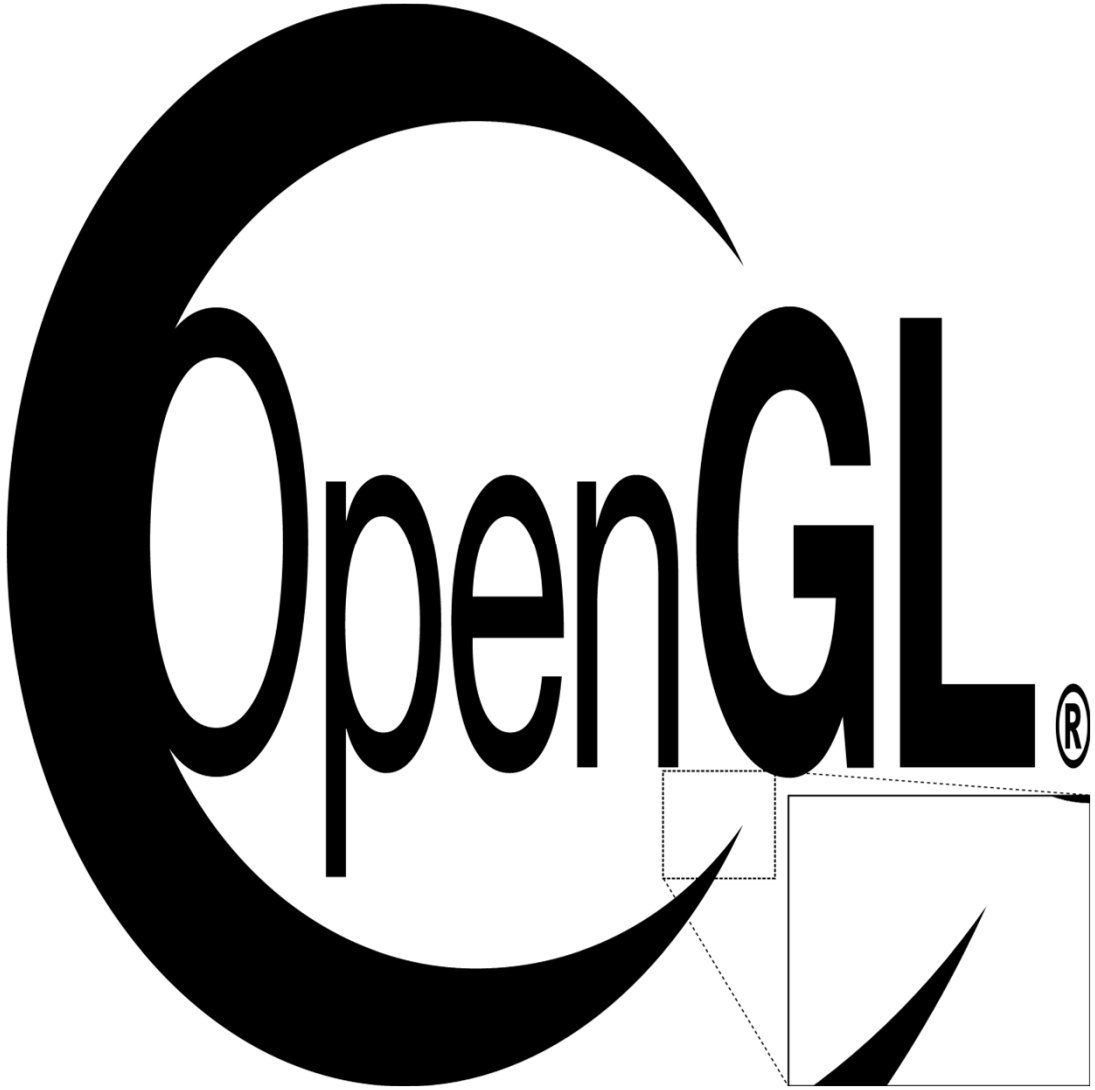

Figure 13.41: High-resolution texture used for a logo

Figure 13.42: Distance field of the OpenGL logo

Figure 13.43: Distance fields for a line

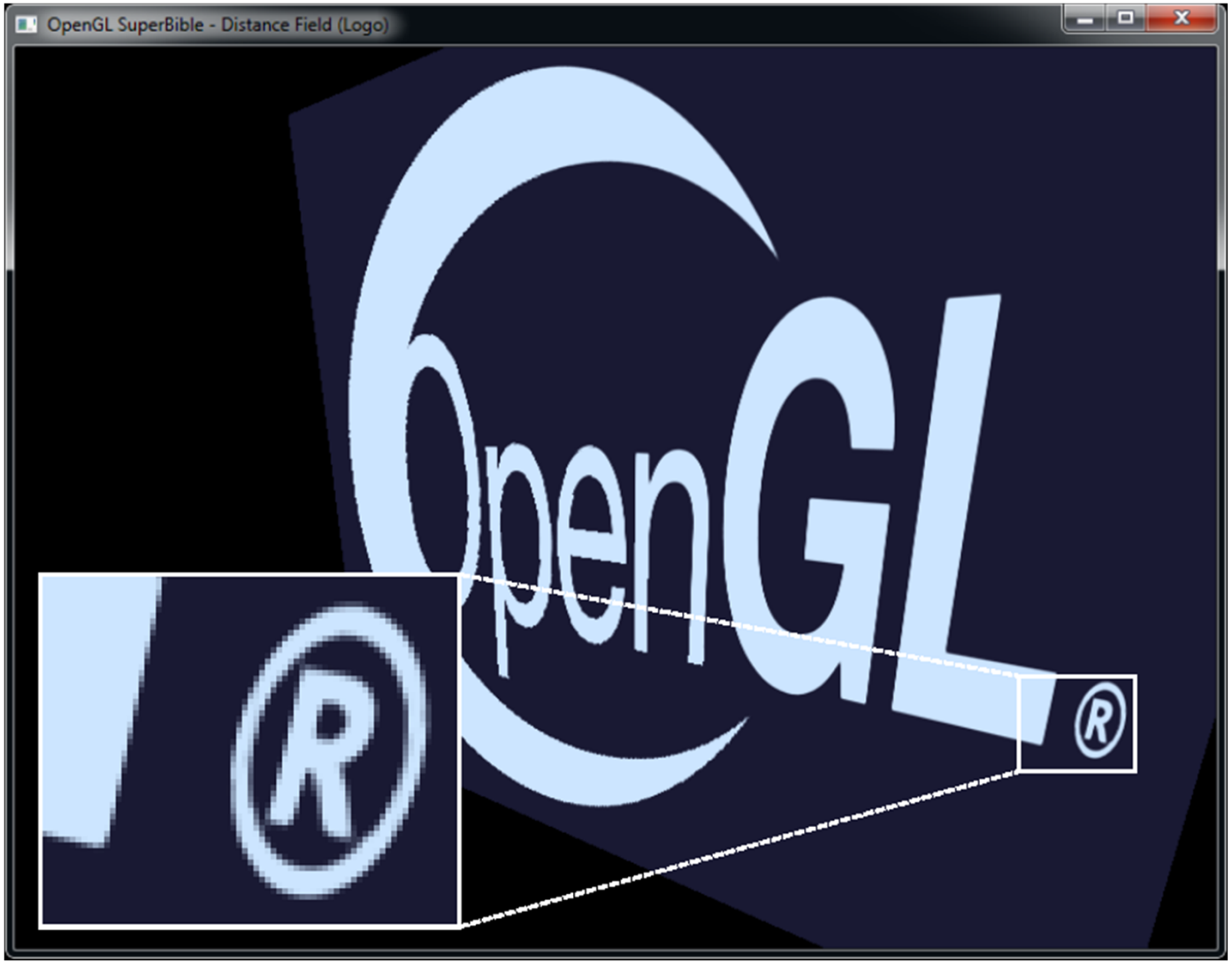

Figure 13.44: Output of distance field rendering application

Figure 13.45: Distance field for English characters

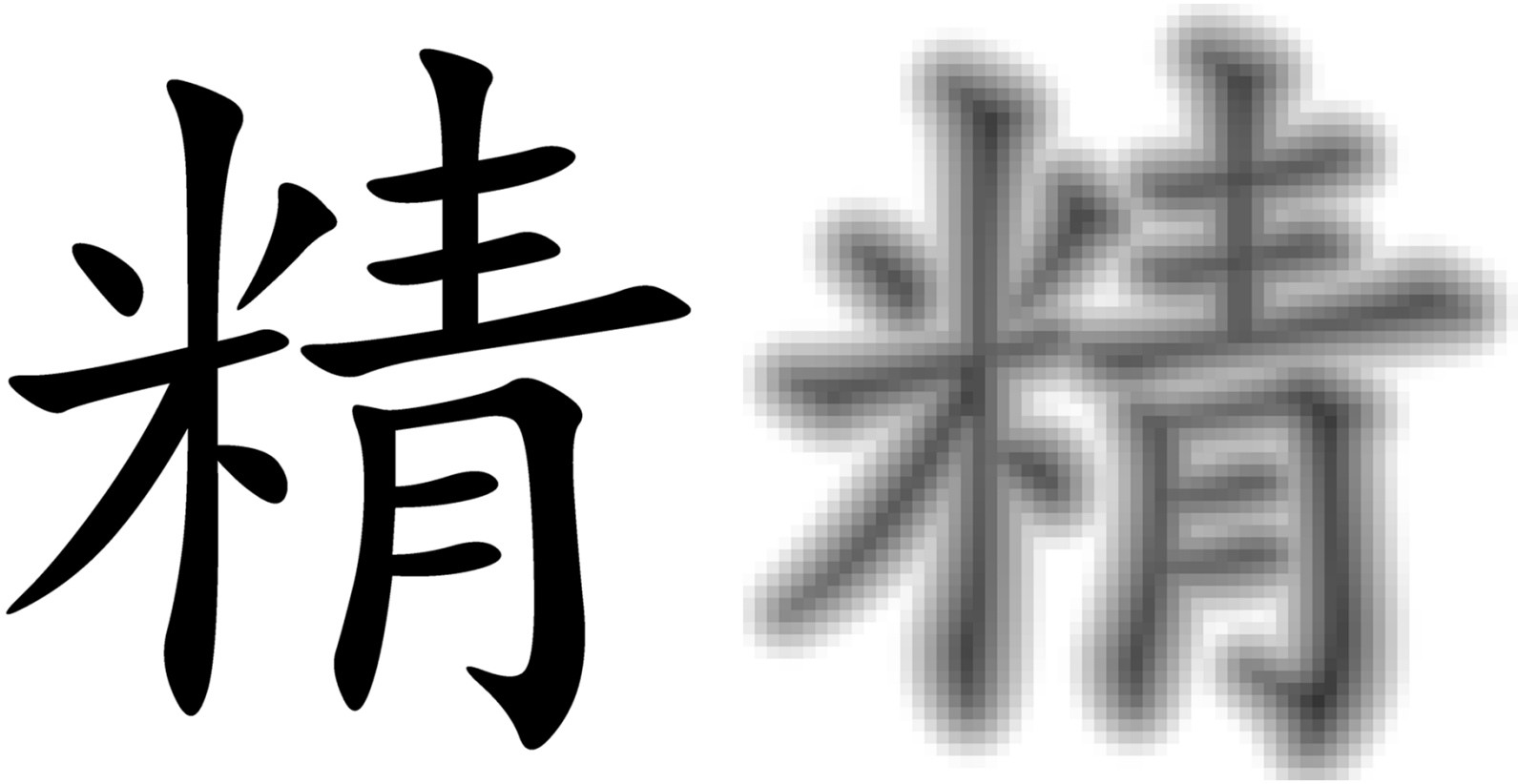

Figure 13.46: Distance field of a Chinese character

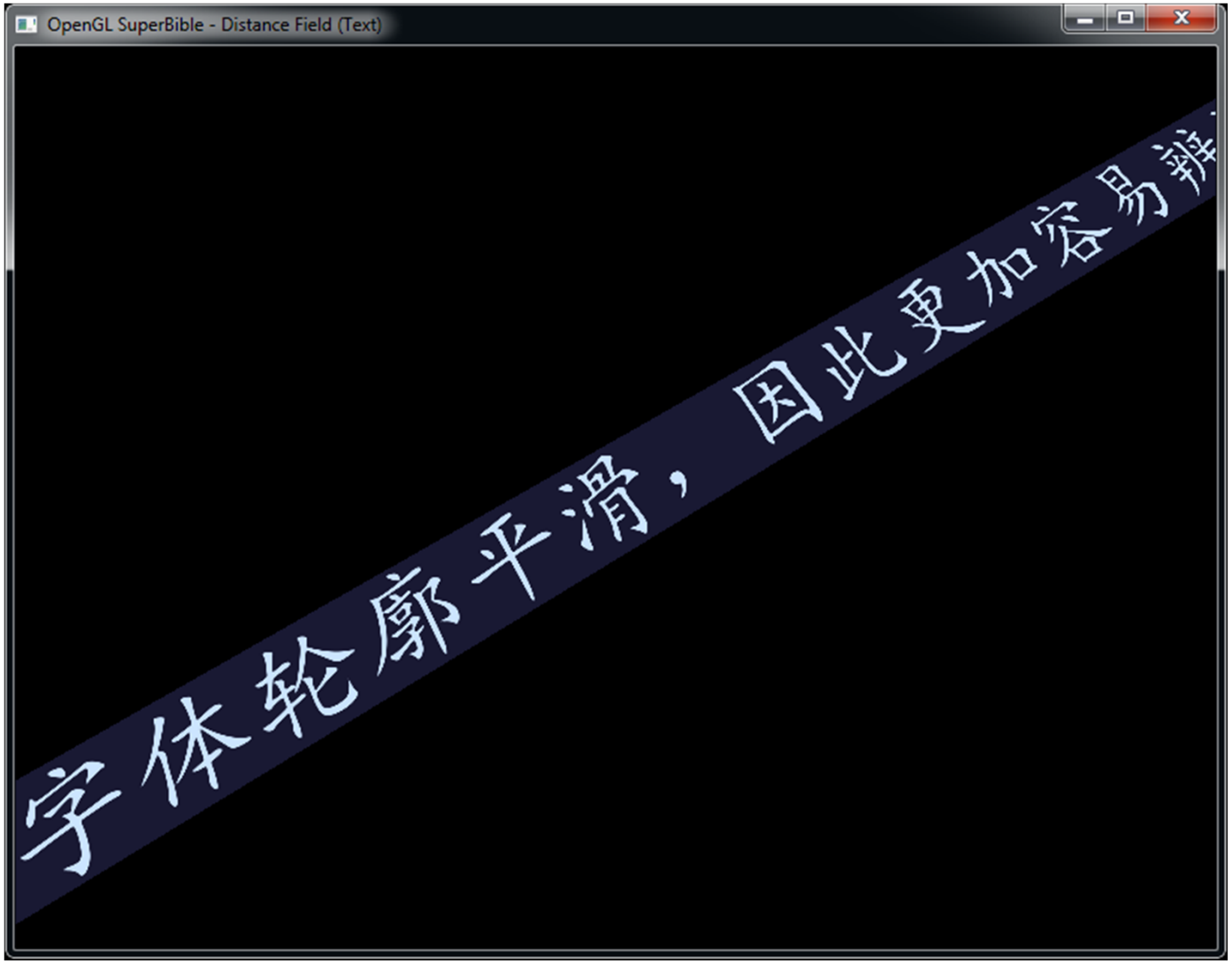

Figure 13.47: Chinese text rendered using distance fields

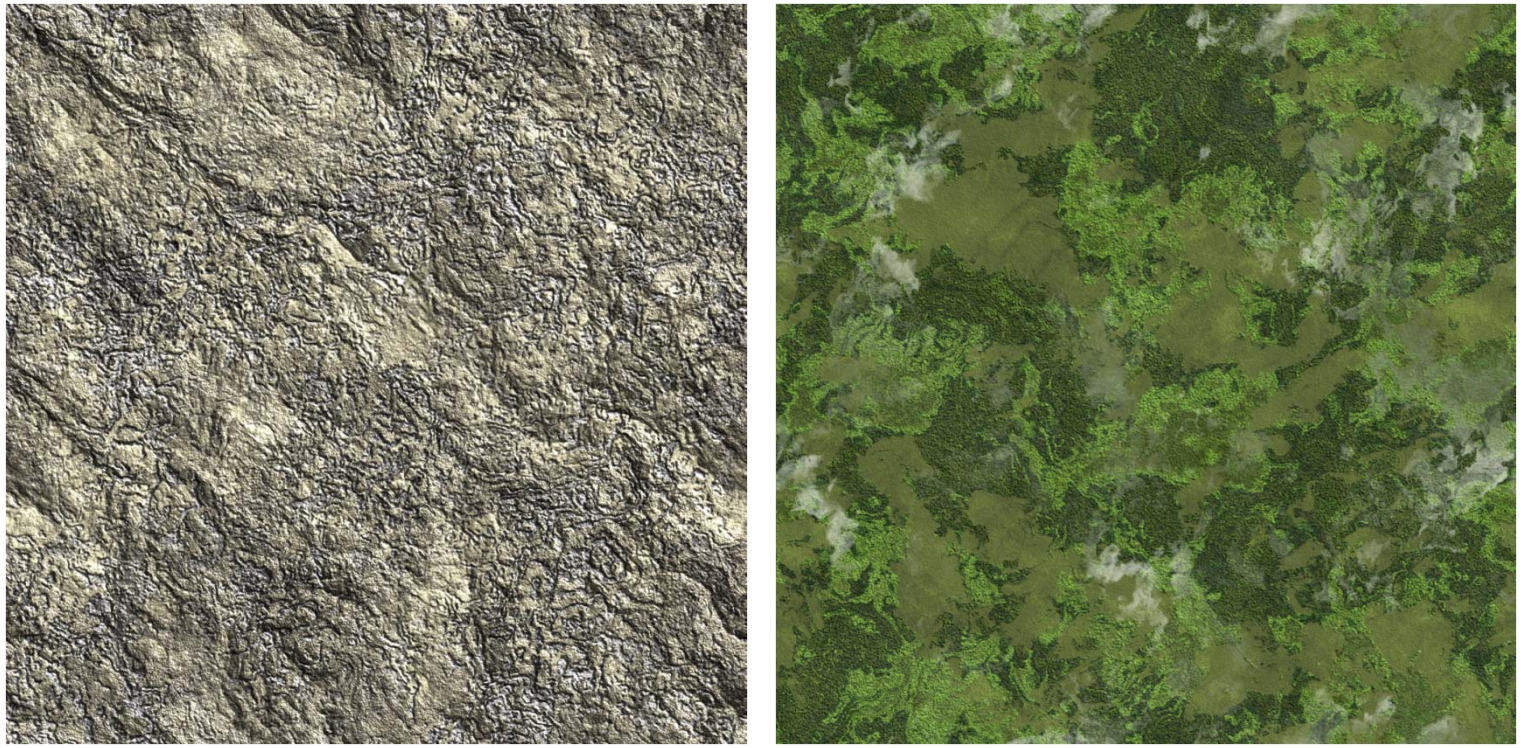

Figure 13.48: Two textures to be mixed using a distance field

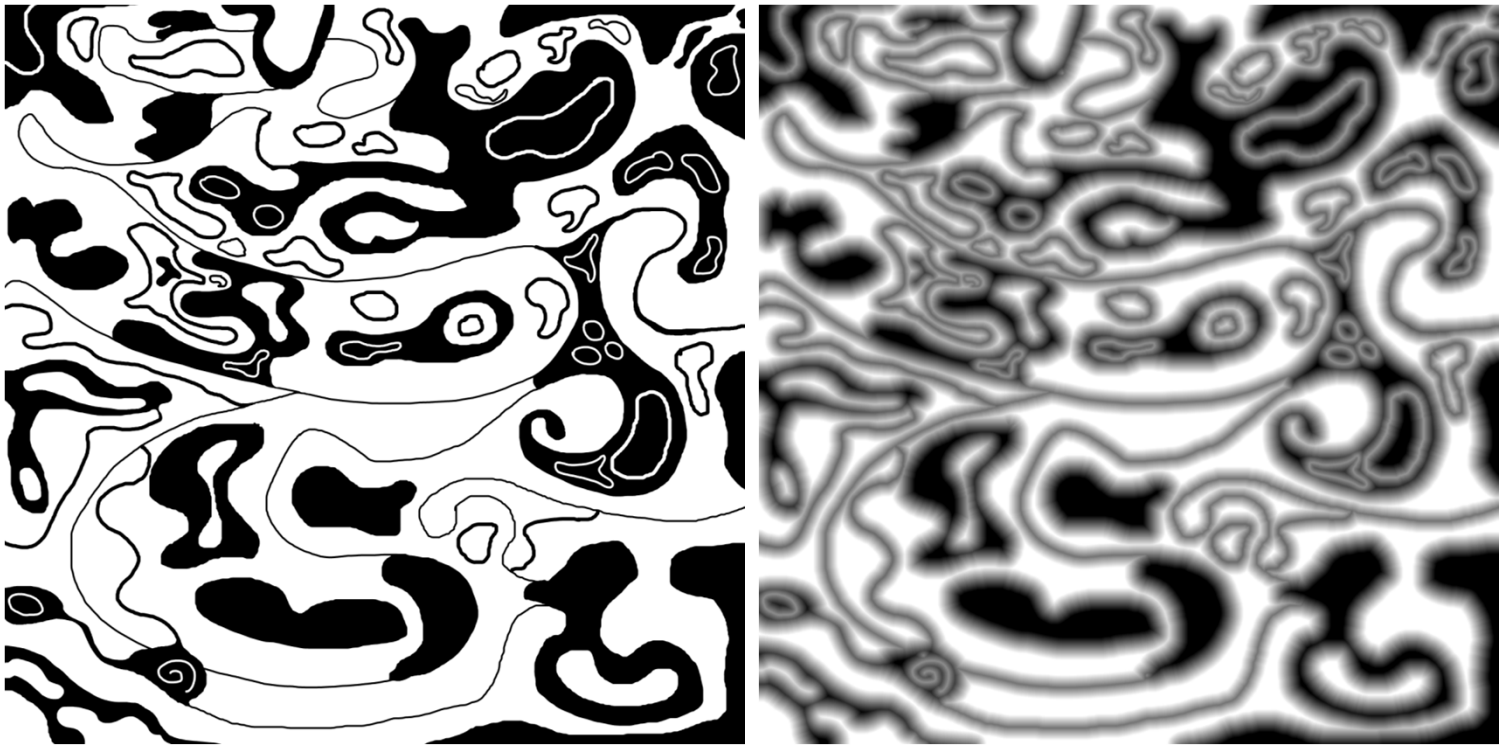

Figure 13.49: Landscape map texture and distance field

Figure 13.50: Result of landscape texturing with distance fields

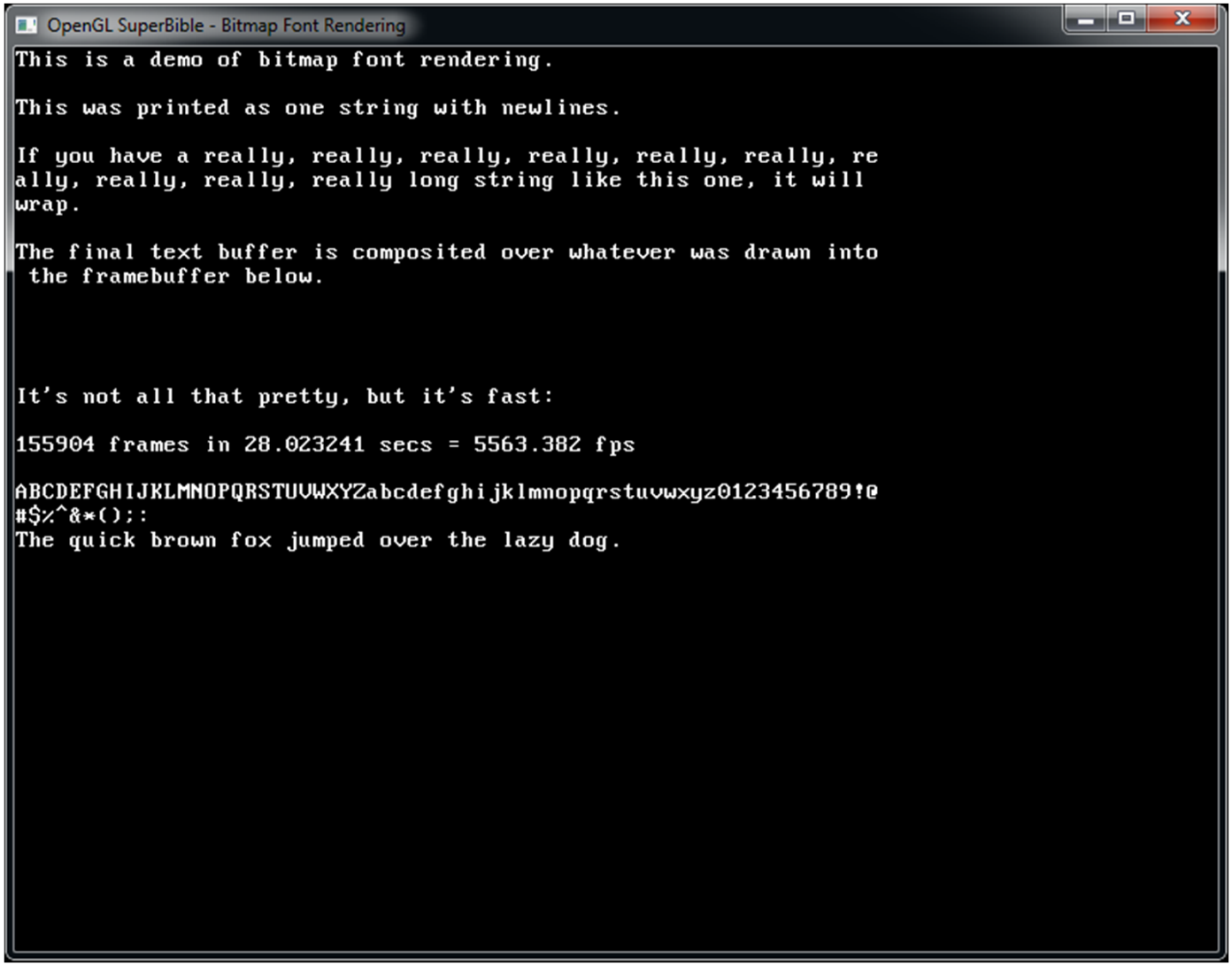

Figure 13.51: Output of font rendering demo