Ray Tracing: light falloff

1 Light Intensity and Falloff

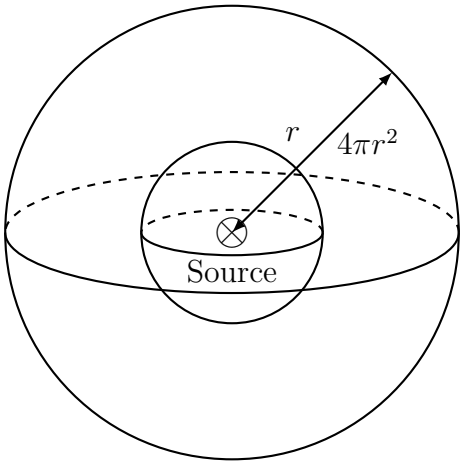

Figure 1: Radiation of light from a point source through concentric spherical shells.

The intensity of light decreases as it radiates away from a point source. This can be observed by assuming that all of the light emitted falls on the surface of a sphere. The surface area of a sphere is:

$$A = 4\pi r^2 \tag{1}$$

Consequently, the light intensity L is proportional to the inverse square of the distance r from the source:

$$L \propto \frac{1}{r^2} \tag{2}$$