



[Figure 39-8](#) Comparison of Simple and Complex Lighting Effects

Compositing

To efficiently evaluate the volume rendering equation (Equation 1), samples are sorted in back-to-front order, and the accumulated color and opacity are computed iteratively. A single step of the compositing process is known as the *Over operator*:

[Equation 5 Back-to-Front Compositing Equations](#)

$$\hat{C}_i = C_i + (1 - A_i) \hat{C}_{i+1},$$

$$\hat{A}_i = A_i + (1 - A_i) \hat{A}_{i+1},$$

where C_i and A_i are the color and opacity obtained from the fragment shading stage for segment i along the viewing ray, and

$$\hat{C}_i$$

is the accumulated color from the back of the volume. If samples are sorted in front-to-back order, the *Under operator* is used:

[Equation 6 Front-to-Back Compositing Equations](#)