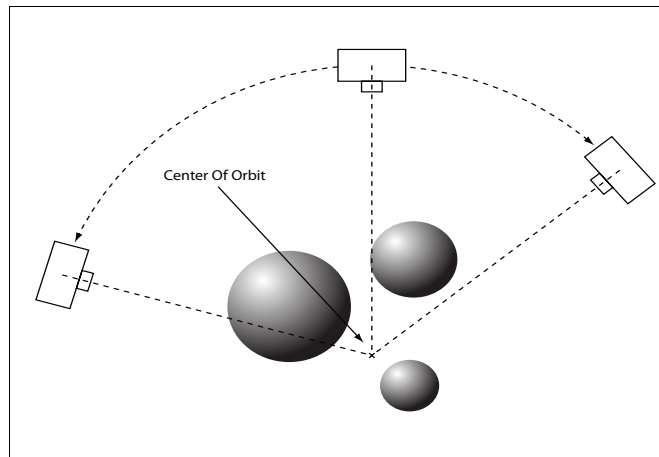The form XObject specified by the **O** entry is subject to the following restrictions; failure to abide by them could result in misalignment of the overlay with the rendered 3D graphics:

- The form XObject is associated with a specific view (not with the camera position defined by the 3D view dictionary). It should only be drawn when the user navigates using the 3D view, not when the user happens to navigate to the same orientation by manual means.

- It should only be drawn if the artwork-to-world matrix has not been altered.

- It may only be specified in 3D view dictionaries in which both a camera-to-world matrix (**MS** and associated entries) and a projection dictionary (the **P** entry) are present.
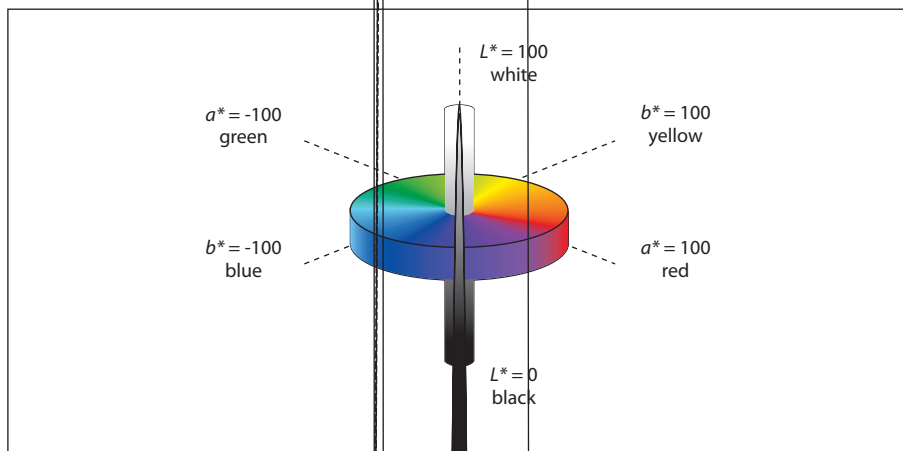
The **CO** entry specifies the distance from the camera to the *center of orb t* for the 3D view, which is the point around which the camera should rotate when performing an orbit-style navigation. Figure 9.4 illustrates camera positioning when orbiting around the center of orbit.
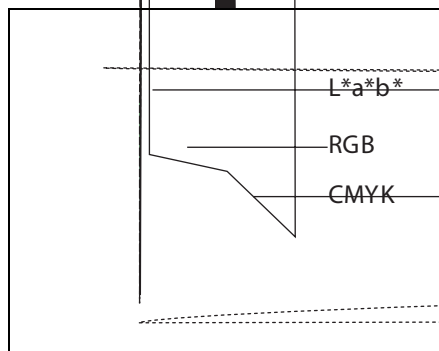

FIGURE 9.4 *Rotat on around t e center of orb t*

The **LS** entry allows the lighting of the 3D artwork to be changed without changing the artwork itself. This enables consumers to view a given piece of 3D artwork with a variety of lighting options without requiring multiple copies of the 3D artwork stream that differ only in lighting. It also enables artwork with poor lighting
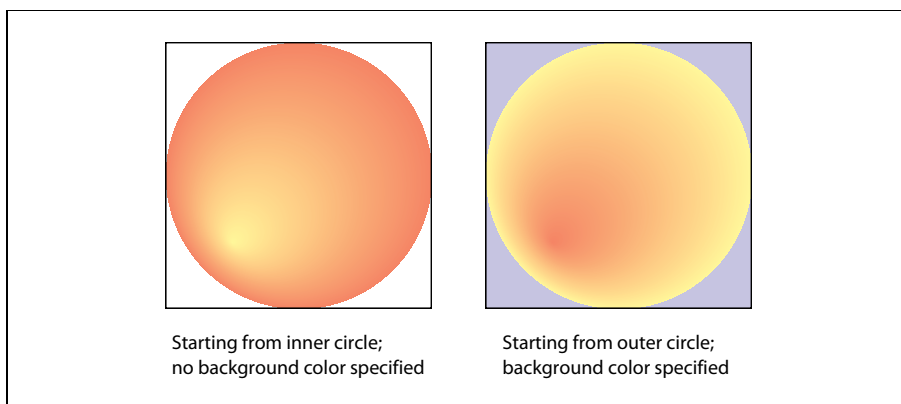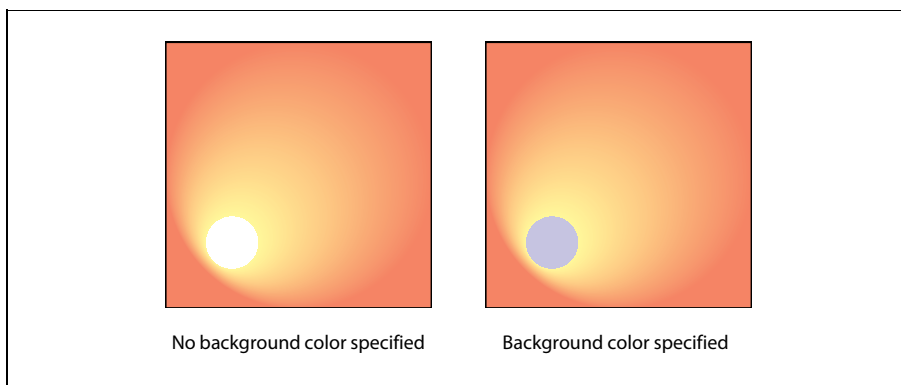
Far Clipping Plane

Near Clipping plane

Objects projected onto near clipping plane

axis

Field of View angle

Circle defined by Field of View angle on near clipping plane

$L* = 100$
white

$a* = -100$
green

$b* = 100$
yellow

$b* = -100$
blue

$a* = 100$
red

$L* = 0$
black

PLATE 3 *Lab* color space ("Lab Color Spaces," page 250)

L*a*b*

RGB

CMYK

PLATE 4 *Color ga   uts ("Lab Color Spaces," page 250)*

Starting from inner circle;
no background color specified

Starting from outer circle;
background color specified

PLATE 12 *Rad al s ad ngs dep ct ng a sp ere ("Type 3 (Rad al) S ad ngs," page 313)*

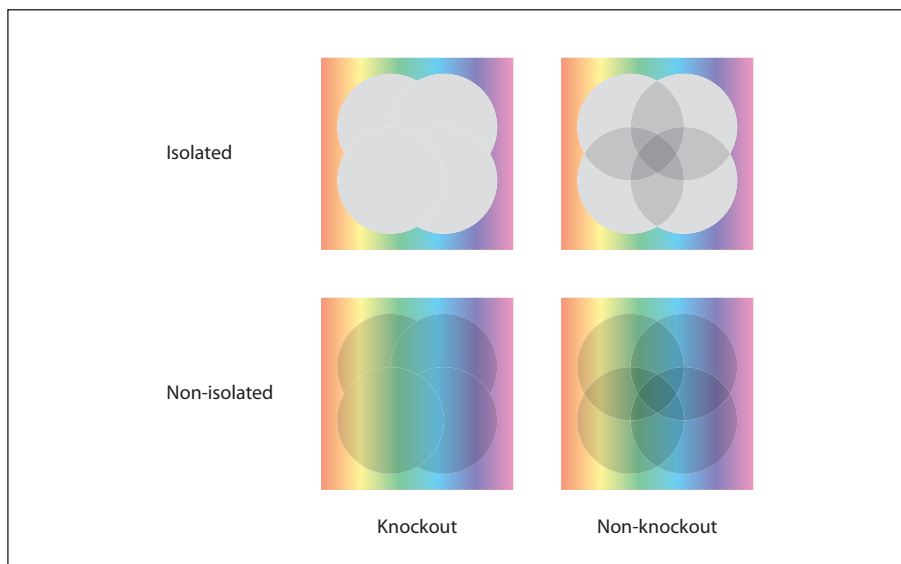No background color specified

Background color specified

PLATE 13 *Rad al s ad ngs w t extens on ("Type 3 (Rad al) S ad ngs," page 313)*
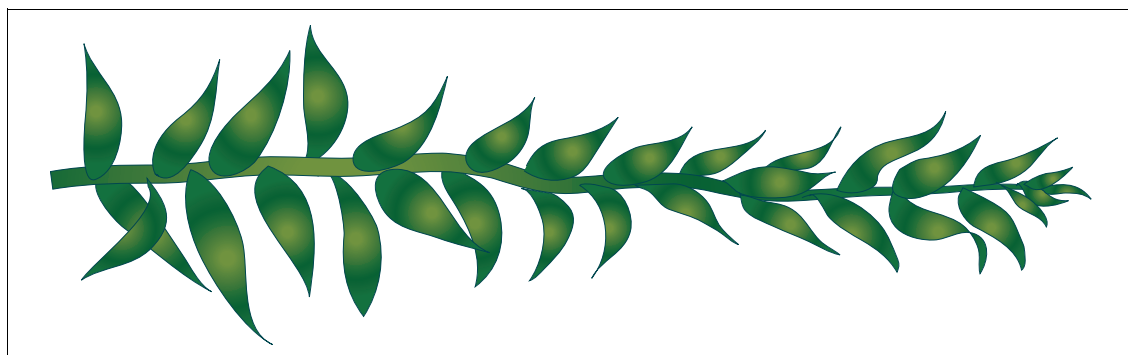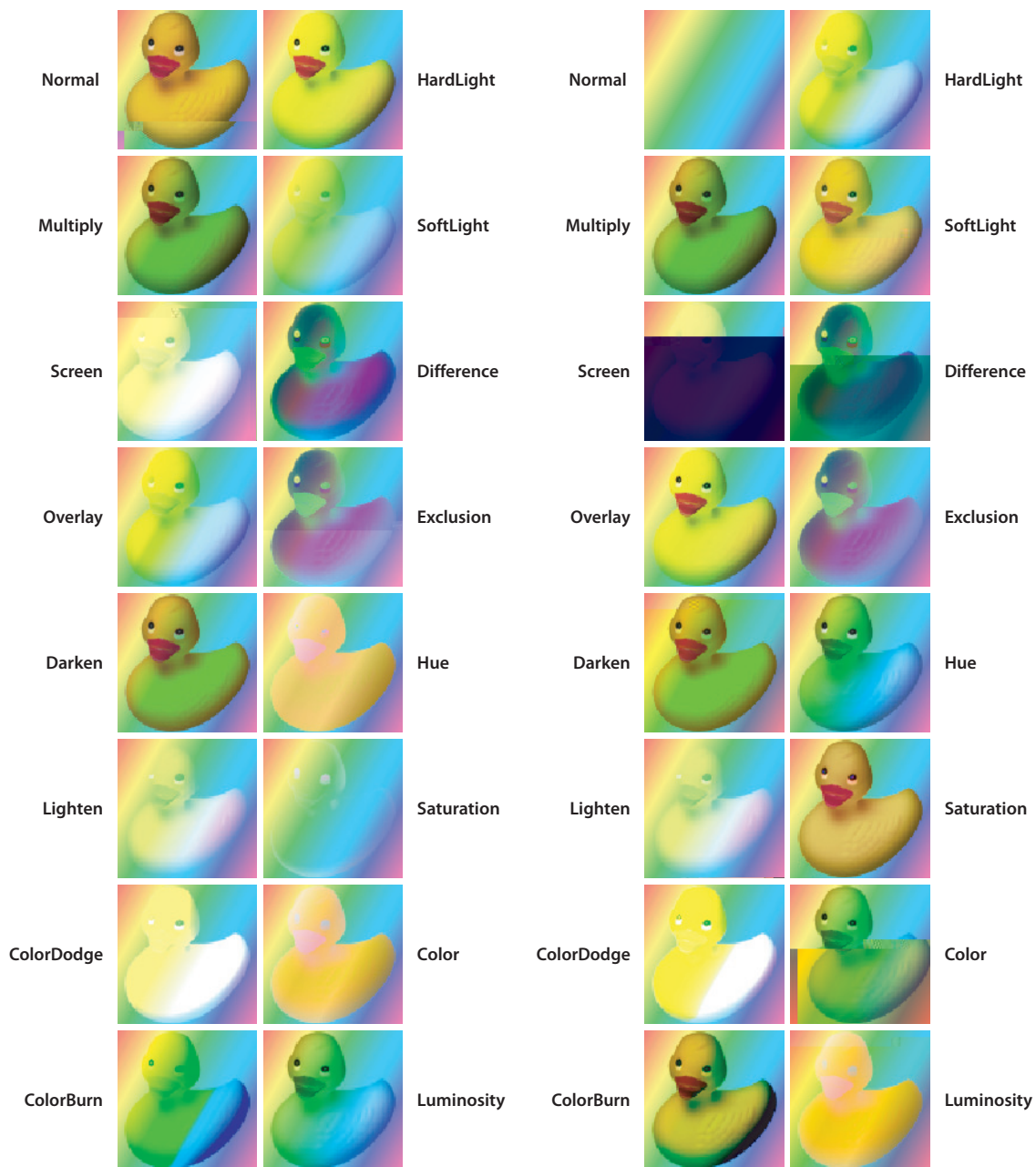

PLATE 14 *Rad al s ad ng effect ("Type 3 (Rad al) S ad ngs," page 313)*
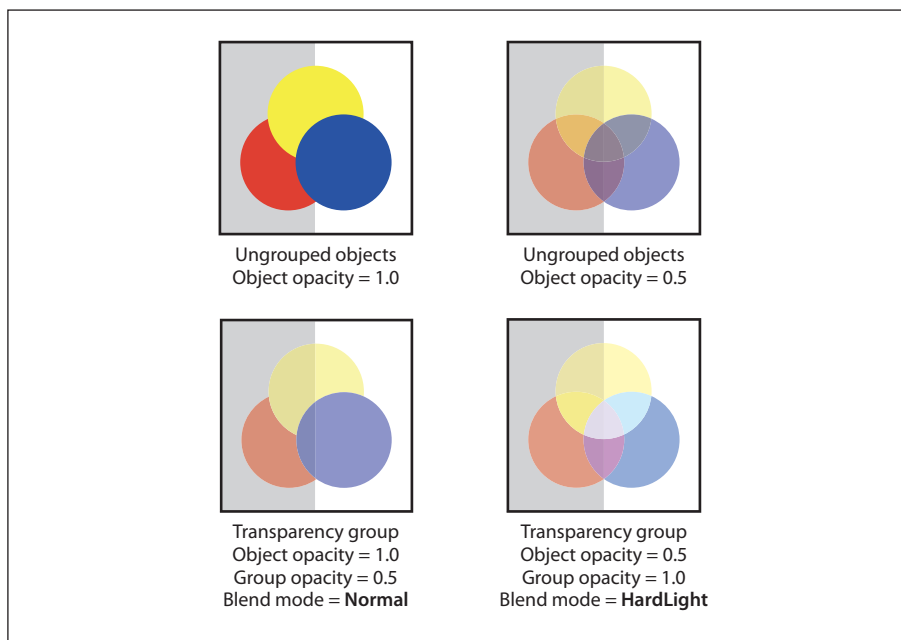
PLATE 16 *Transparency groups (Sect on 7.1, "Overv ew of Transparency," page 515)*

PLATE 17 *Isolated and noc out groups (Sect ons 7.3.4, "Isolated Groups," page 539
and 7.3.5, "Knoc out Groups," page 540)*

Normal **HardLight**

Multiply **SoftLight**

Screen **Difference**

Overlay **Exclusion**

Darken **Hue**

Lighten **Saturation**

ColorDodge **Color**

ColorBurn **Luminosity**

Duck in foreground, rainbow in background

Normal **HardLight**

Multiply **SoftLight**

Screen **Difference**

Overlay **Exclusion**

Darken **Hue**

Lighten **Saturation**

ColorDodge **Color**

ColorBurn **Luminosity**

Rainbow in foreground, duck in background

PLATE 18 *RGB blend   odes (Sect on 7.2.4, "Blend Mode," page 520)*