**Report 06: Geometric transform**

**Ge Yunhao（116020910017）**

**[Problem 06]**

Develop a geometric transform program that will rotate, translate, and scale an image by specified amounts, using the nearest neighbor and bilinear interpolation methods, respectively.

**[Solve]**

**Program:** problem6.m.

**Input:** origin\ray\_trace\_bottle.tif.

**Output:**

(1)Figure6.1. Image translation were x=170, y=50.

(2) Figure6.2. Image scaling with using the nearest neighbor and bilinear interpolation methods

(3) Figure6.3. Image Ratation using the nearest neighbor and bilinear interpolation methods.

**Transformation Function:**

(1) Bilinear Interpolation

(2) Translation(expressed in affine space)

(3)

(4)

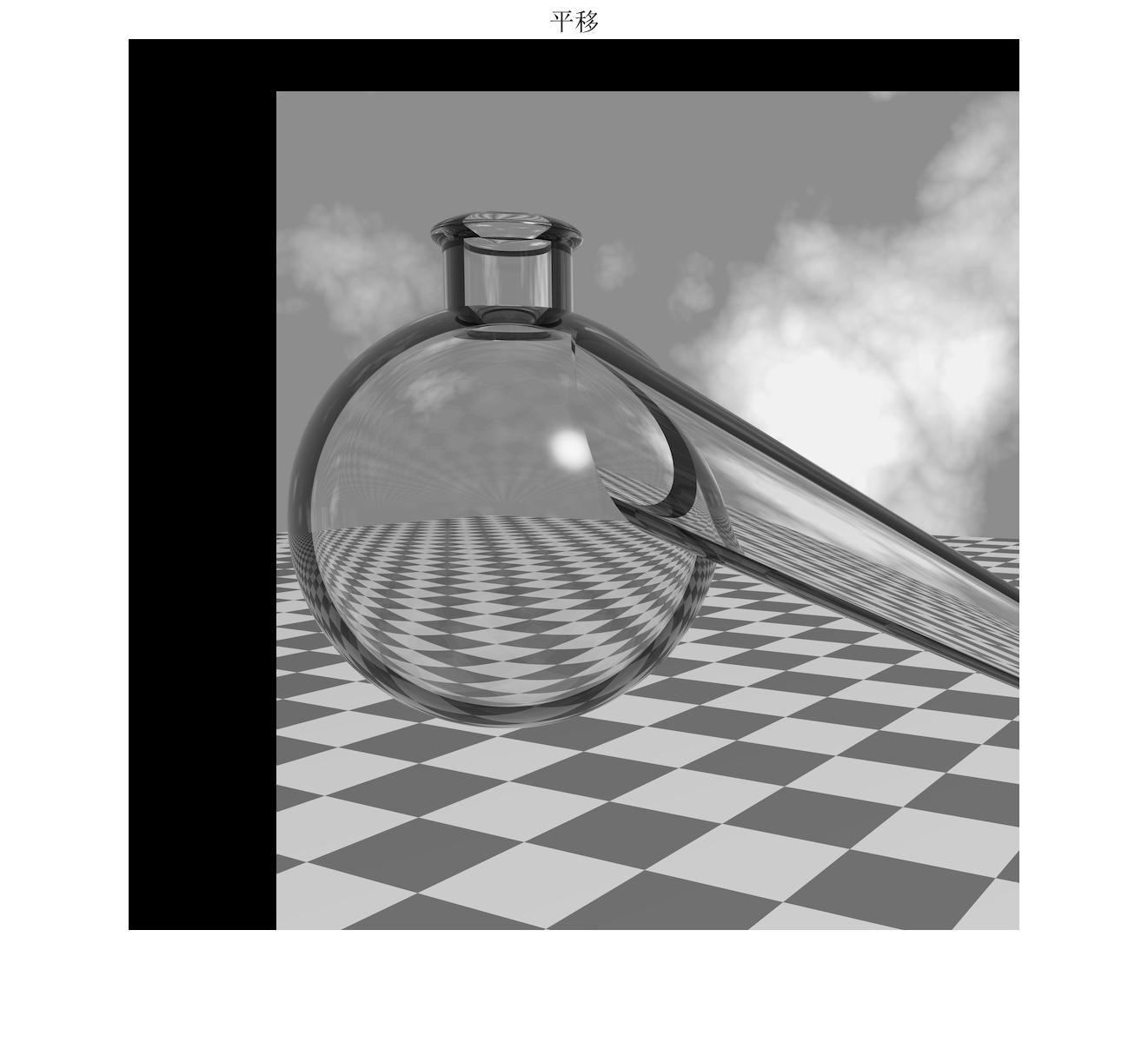


Figure 6.1 Image translation were x=170, y=50

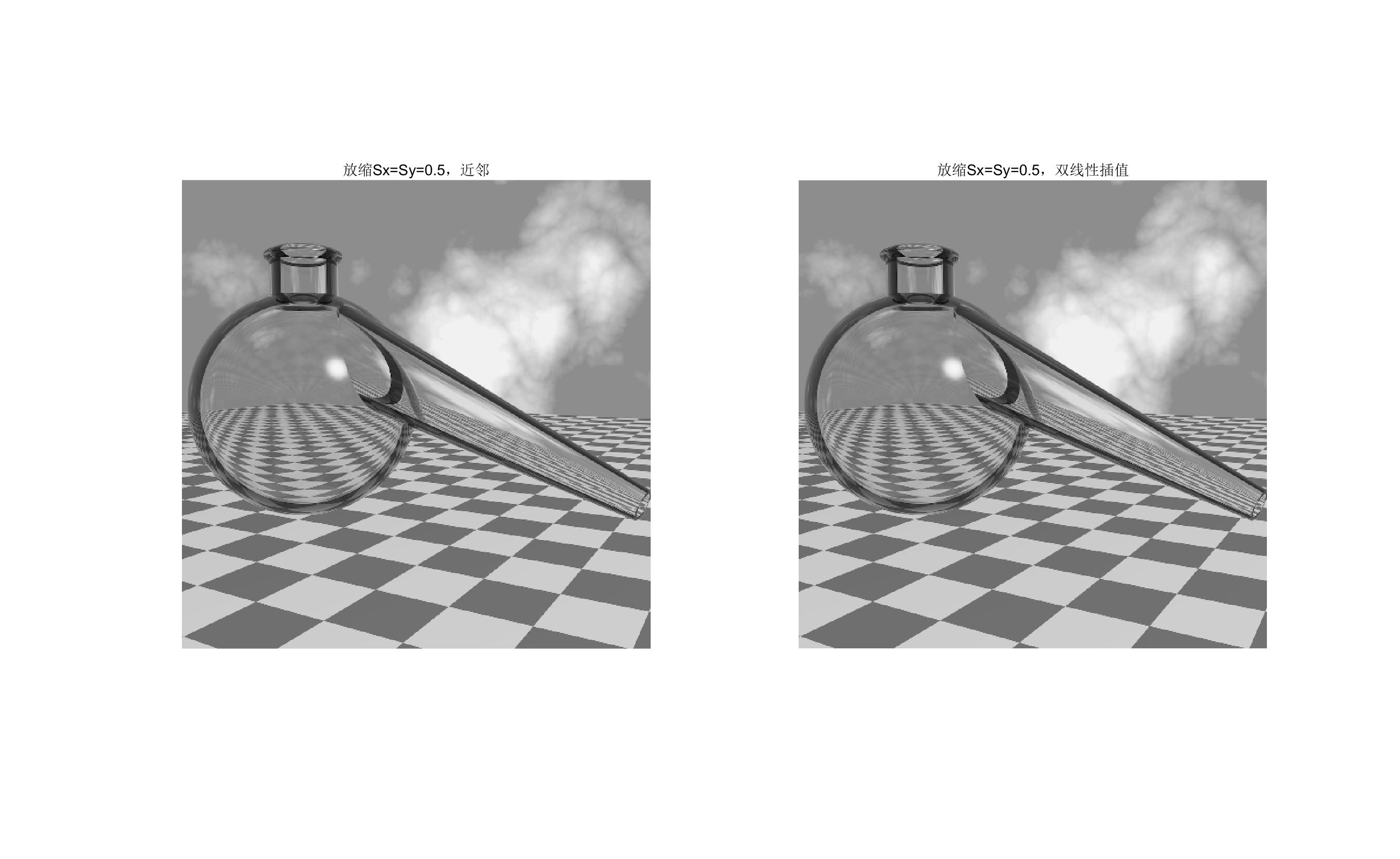


Figure 6.2 Image scaling with using the nearest neighbor and bilinear interpolation methods

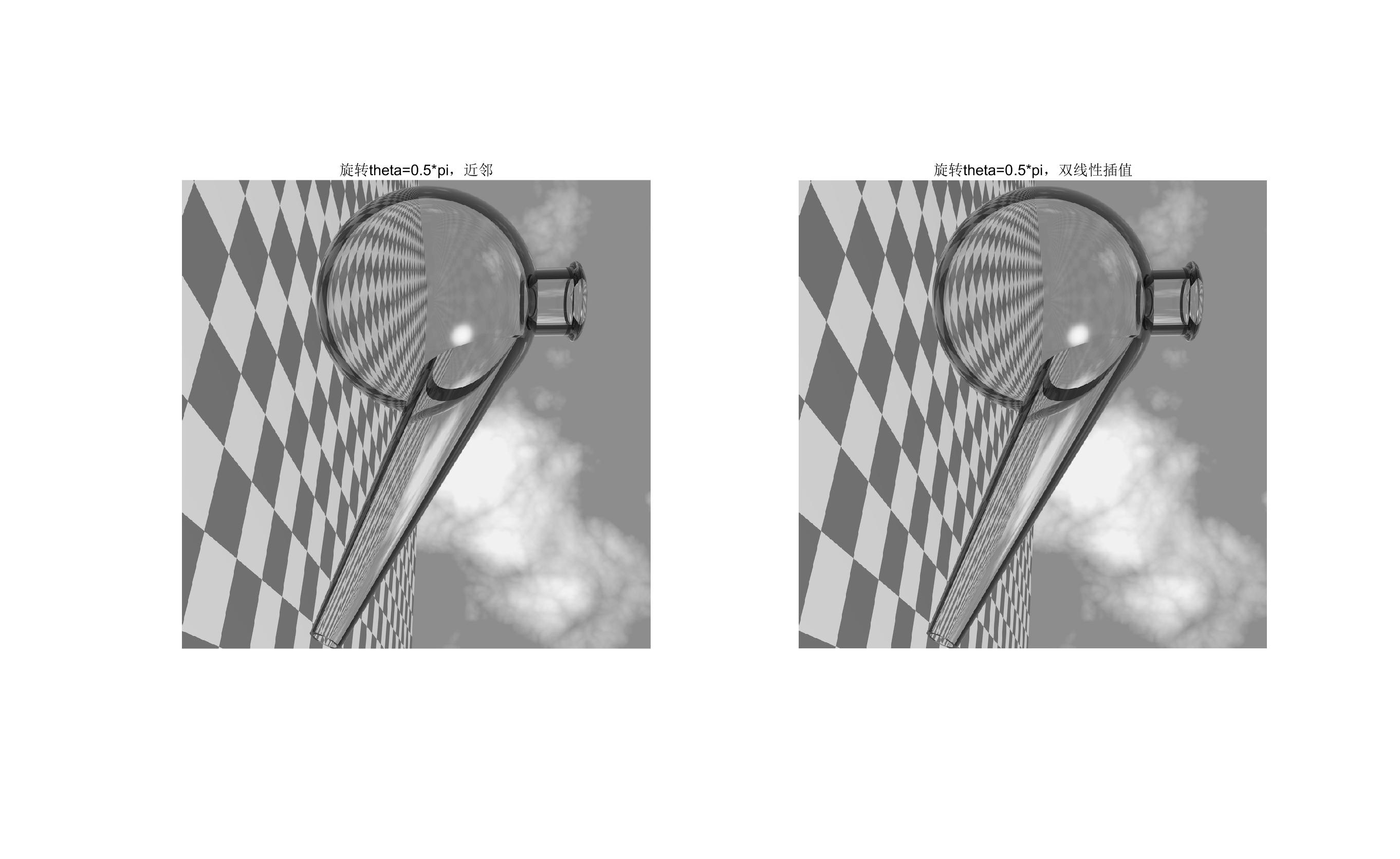


Figure 6.3 Image Ratation using the nearest neighbor and bilinear interpolation methods