

3D Scene Editor

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Overview

- Light position is at **(1.0, 0.0, 1.0)**
- FOV angle is **60** degrees, near place is **-0.1** and far plane is **-100**
- In perspective, the ‘focal length’ or distance from the image plane, is **1.5**

1.1 Scene Editor:

- Adding Objects
 - Unit Cube: **1**
 - Bumpy Cube: **2**
 - Bunny: **3**

1.2 Object Control:

- Clicking an object will select it and change its color to **white**
- Deleting a Selected Object: **C**
- Translation
 - +x, -x: **W, E**
 - +y, -y: **R, T**
 - +z, -z: **Y, U**
- Scaling:
 - up: **S**
 - down: **D**
- Rotation:
 - Backwards and Forwards (along Z): **F, G**
 - Left and Right (along X): **H, J**
 - In a circle (along Y): **K, L**
- Rendering setting of a Selected Object:
 - Wireframe: **4**
 - Flat: **5**
 - Phong: **6**

1.3 Camera Control:

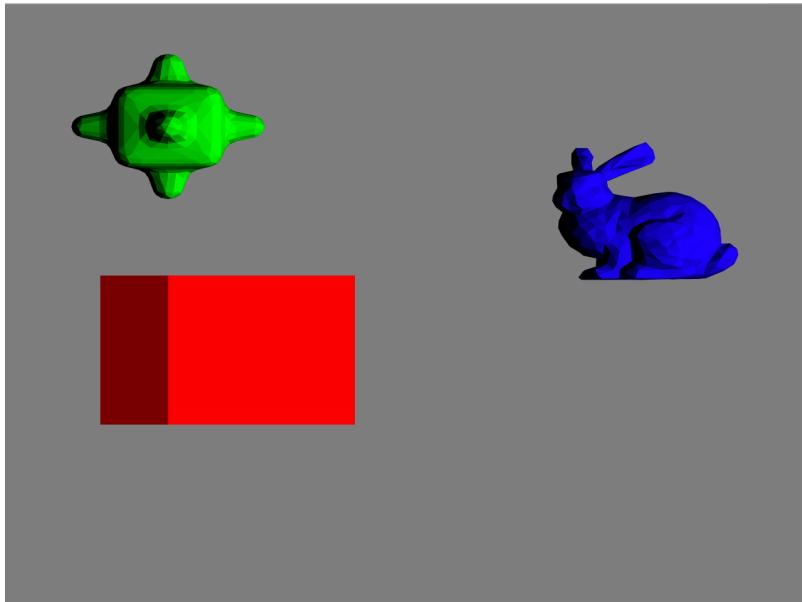
- Camera Translation:
 - Left, Right: **7, 8**
 - Up, Down: **9, 0**
 - Zoom IN, Zoom OUT: +, -
- Orthographic vs. Perspective
 - Change line **59** to **true** for orthographic, **false** for perspective
 - ```
58 // Orthographic or perspective projection?
59 bool ortho = true;
```

Screenshots:

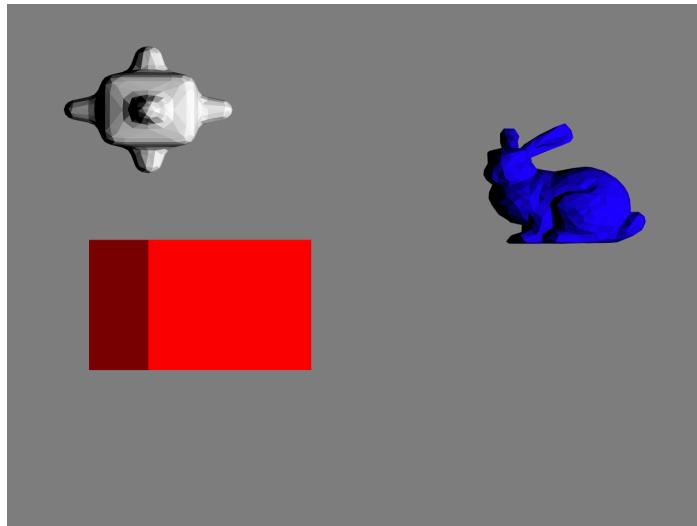
- Since orthographics vs. projection results are different, I have separated the screenshots

Orthographic:

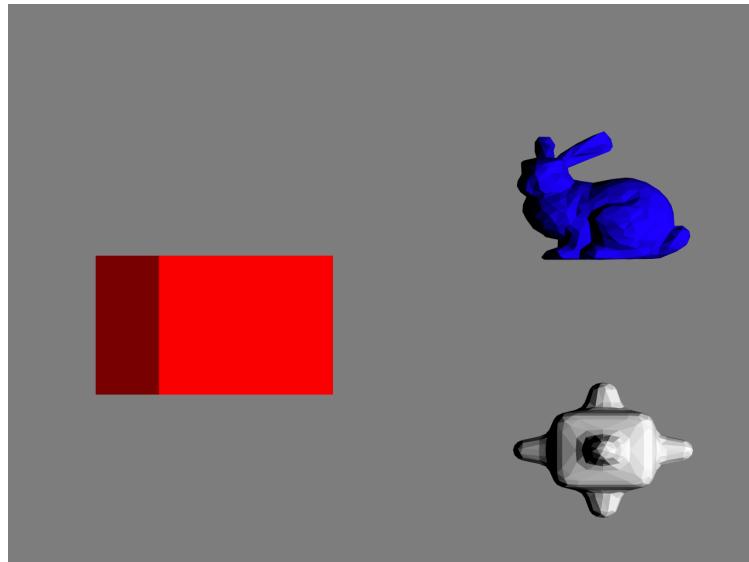
- The **ortho** boolean is now **TRUE**
- Adding objects:



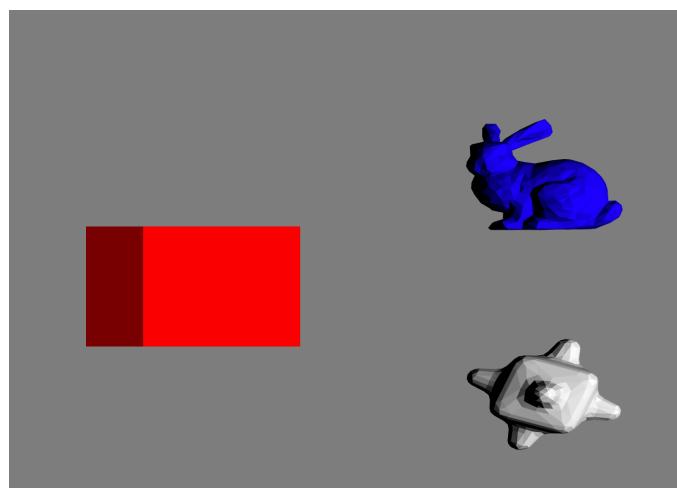
- Selecting objects:



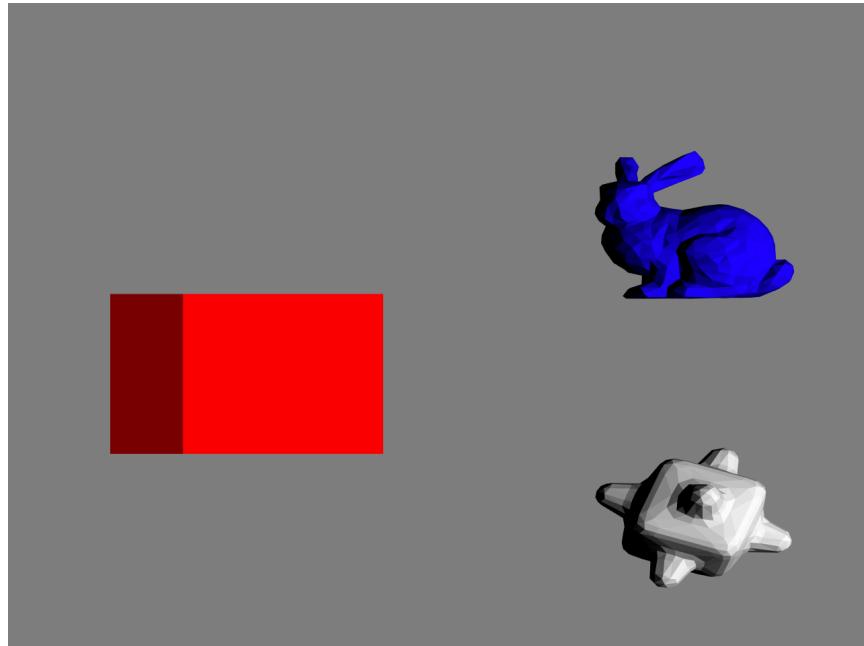
- Translating objects:



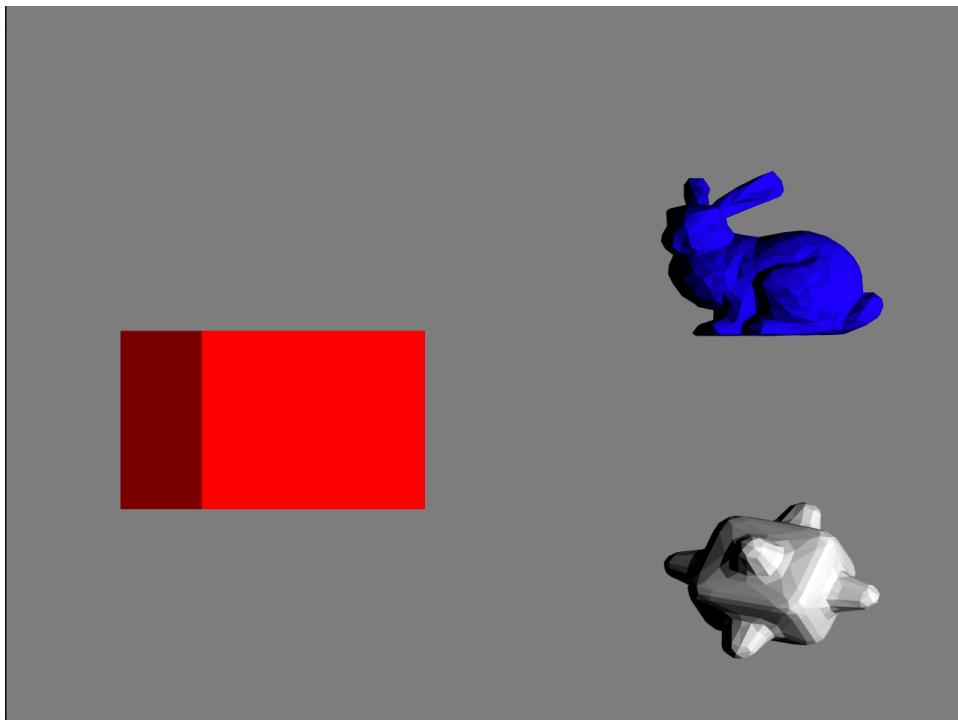
- Z-Rotation:



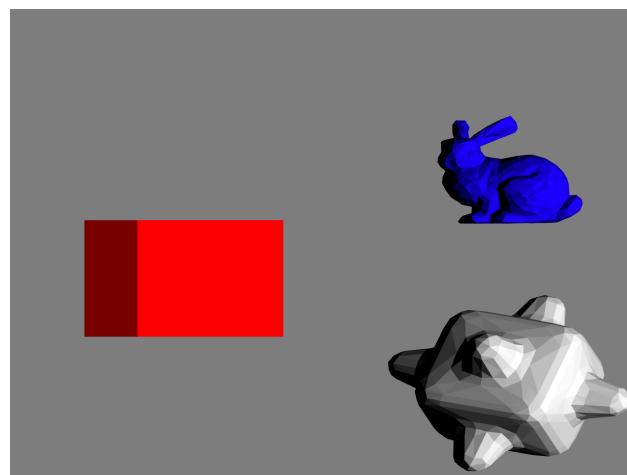
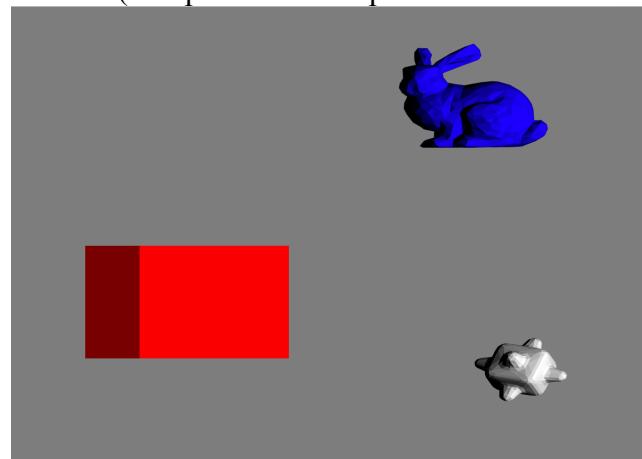
- X-Rotation:



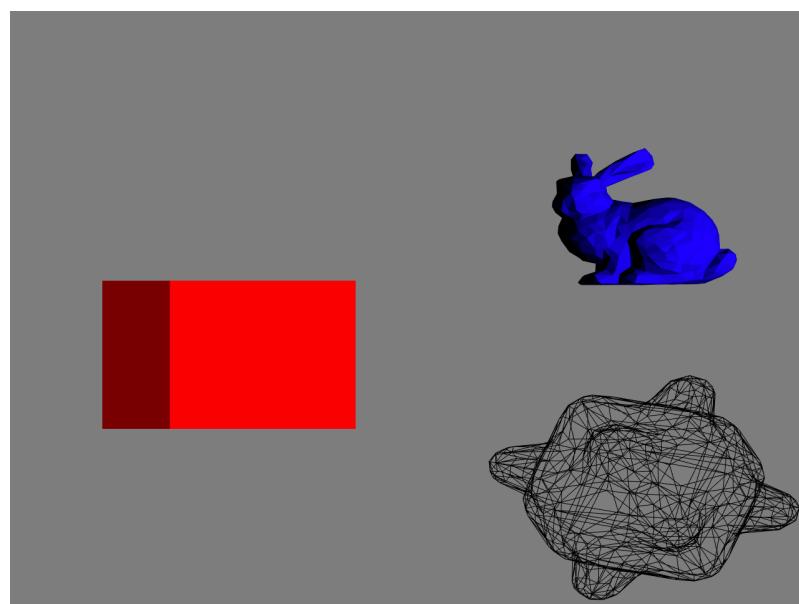
- Y-Rotation:



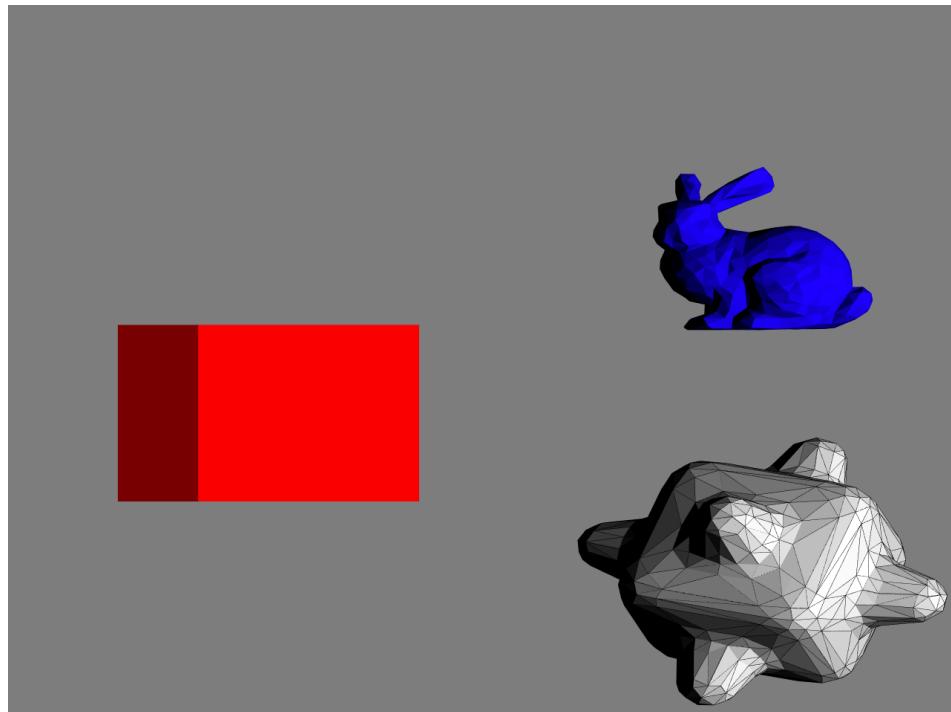
- Scaling UP and DOWN ( I kept the scaled up cube for the rest of the screenshots):



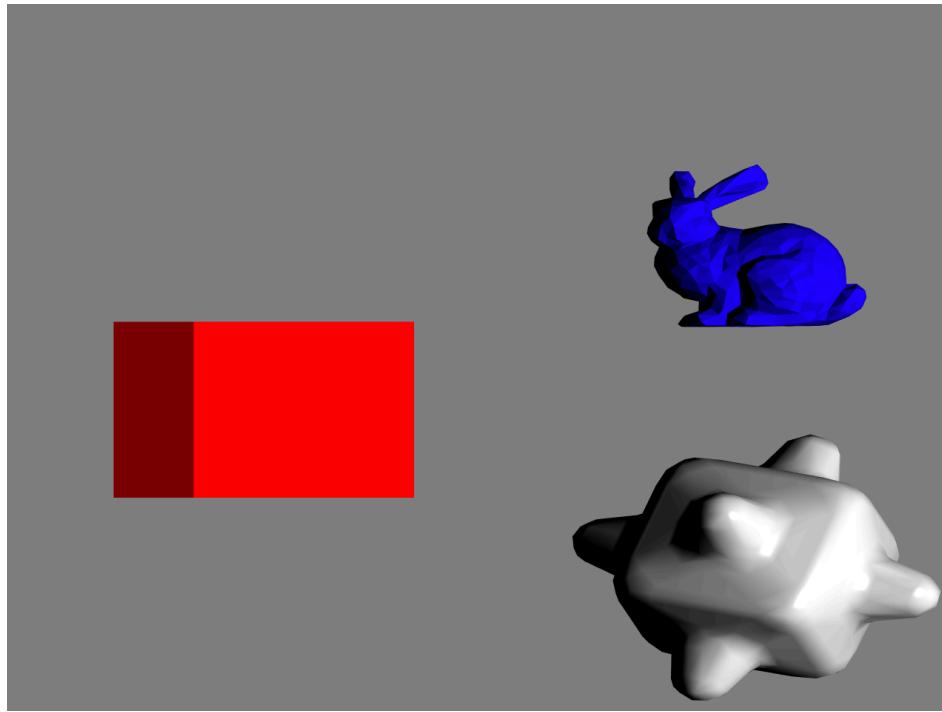
- Wireframe rendering:



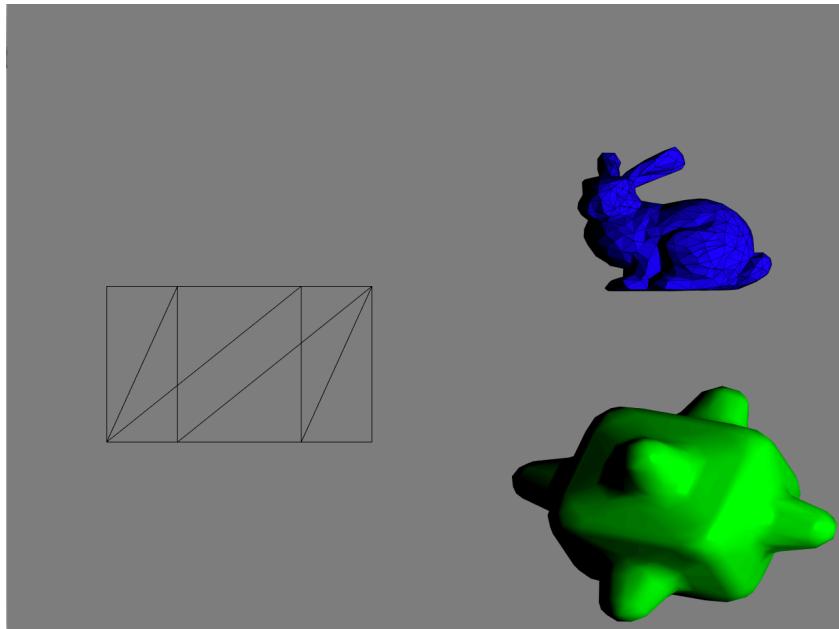
- Flat shading:



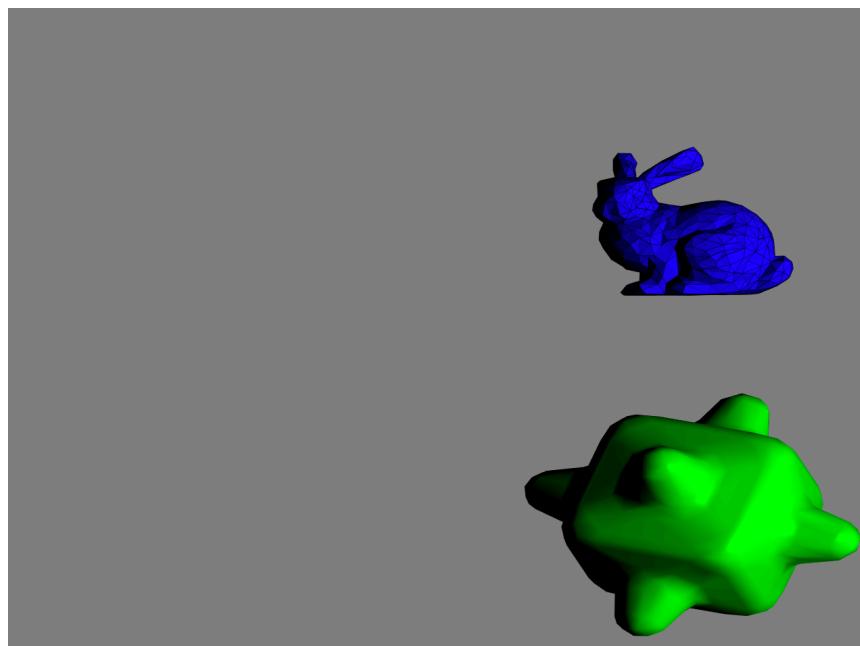
- Phong shading:



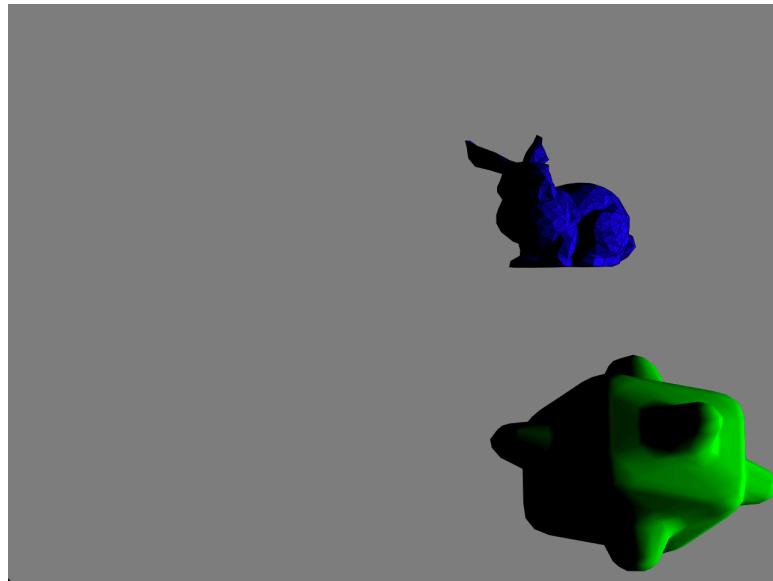
- All objects rendered differently:



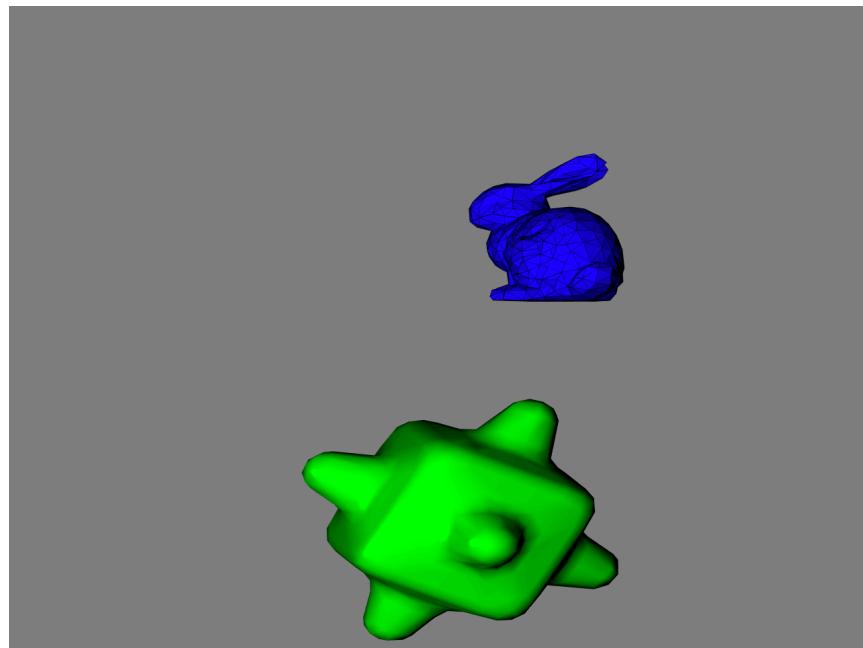
- Deleting the unit cube:



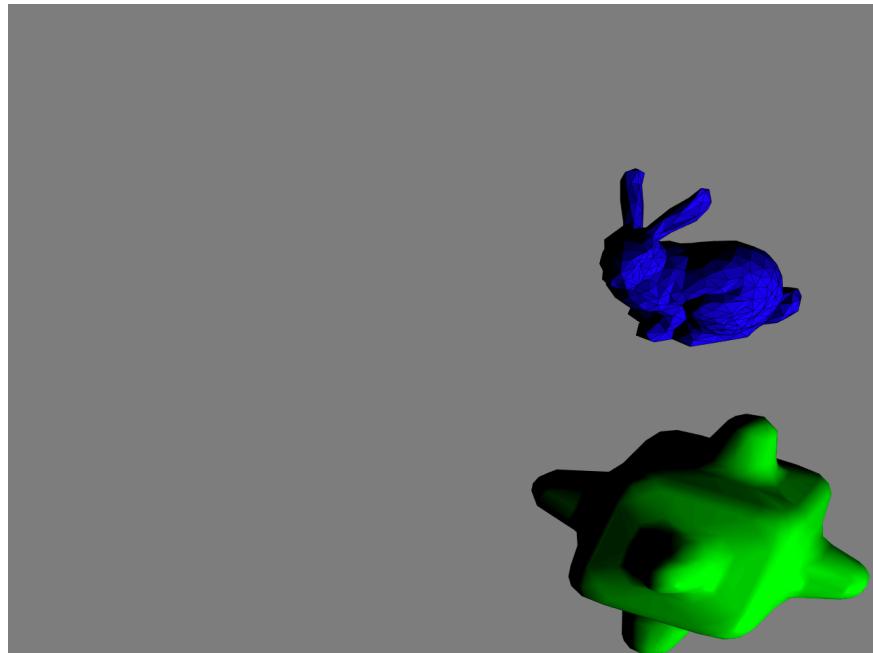
- Moving camera LEFT:



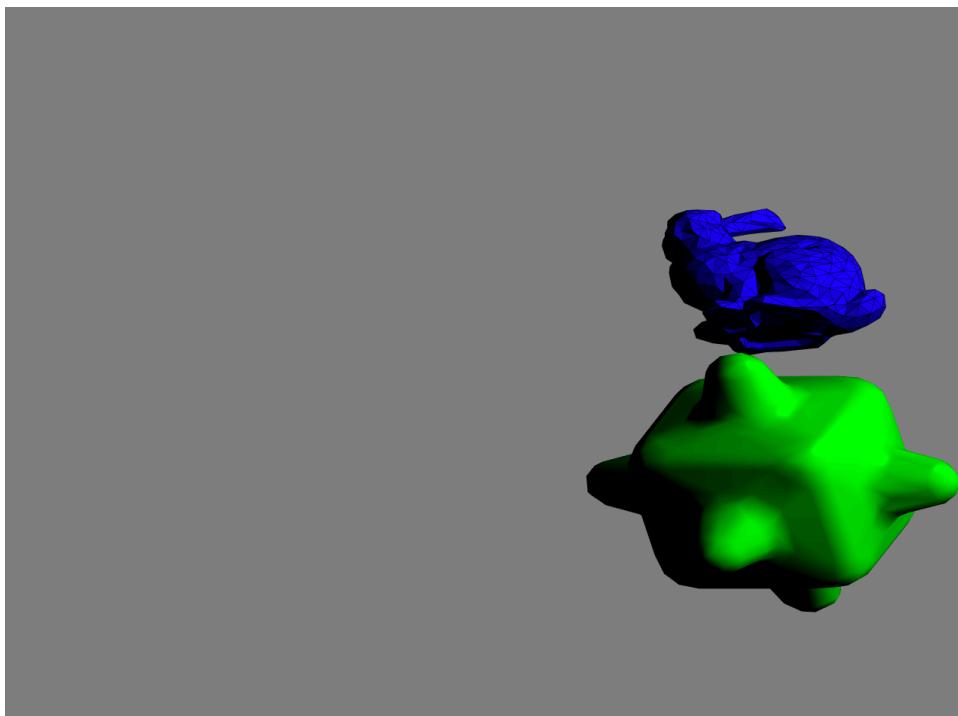
- Moving camera RIGHT:



- Moving camera UP:

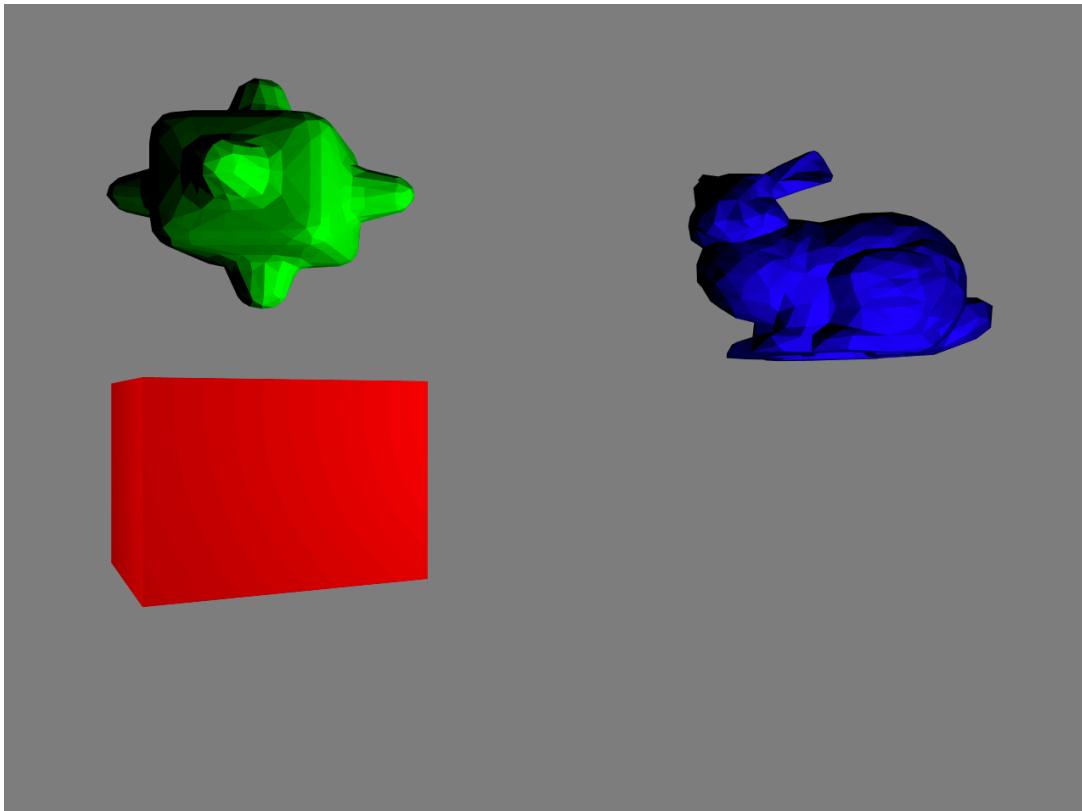


- Moving camera DOWN:

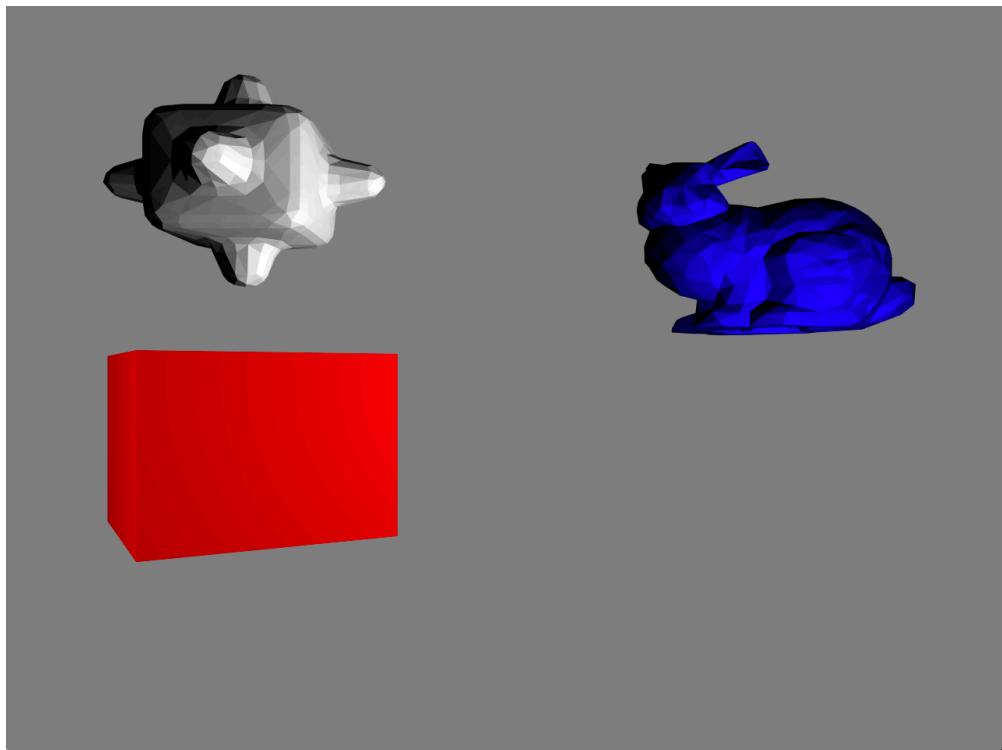


Perspective:

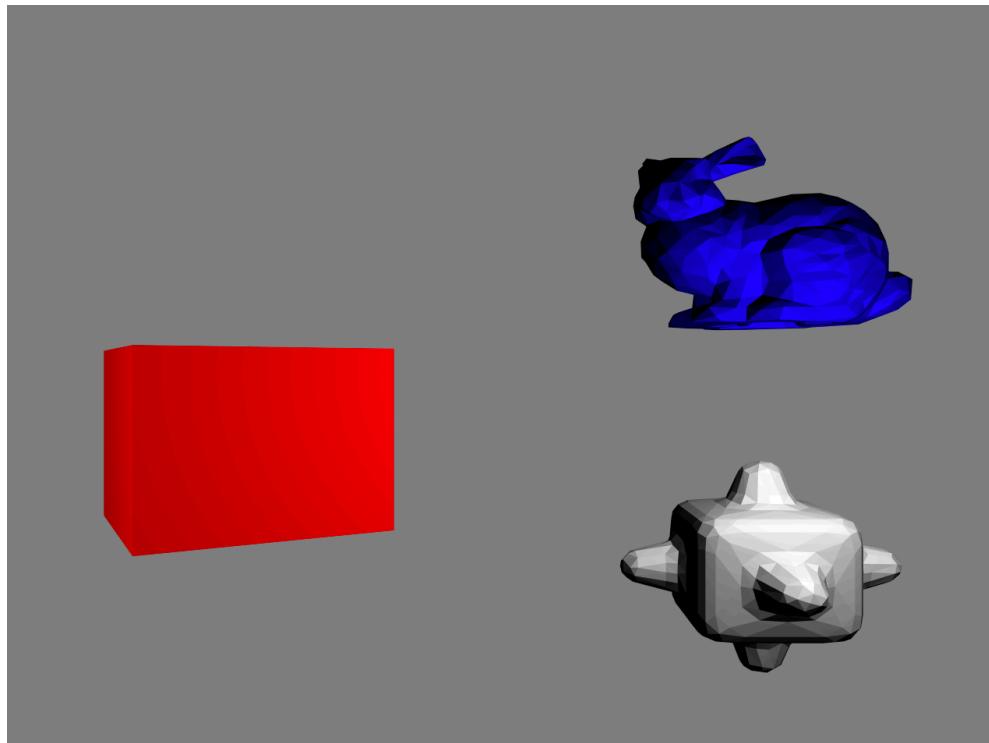
- The **ortho** boolean is now **FALSE**
- Adding objects:



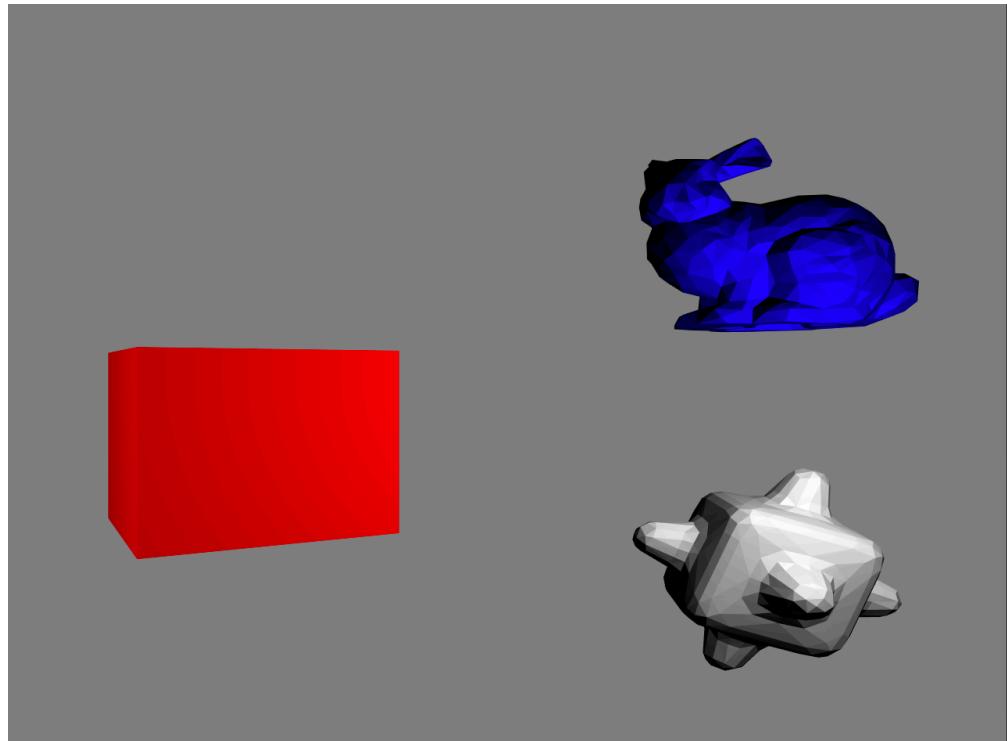
- Selecting objects:



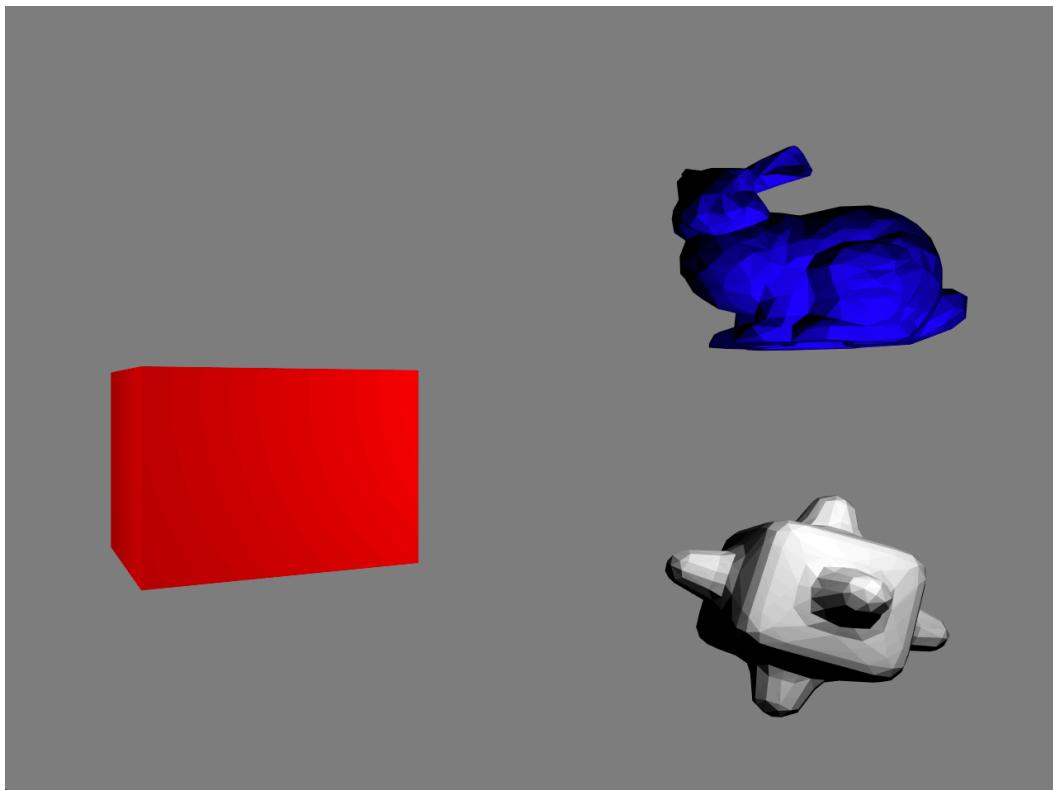
- Translating objects:



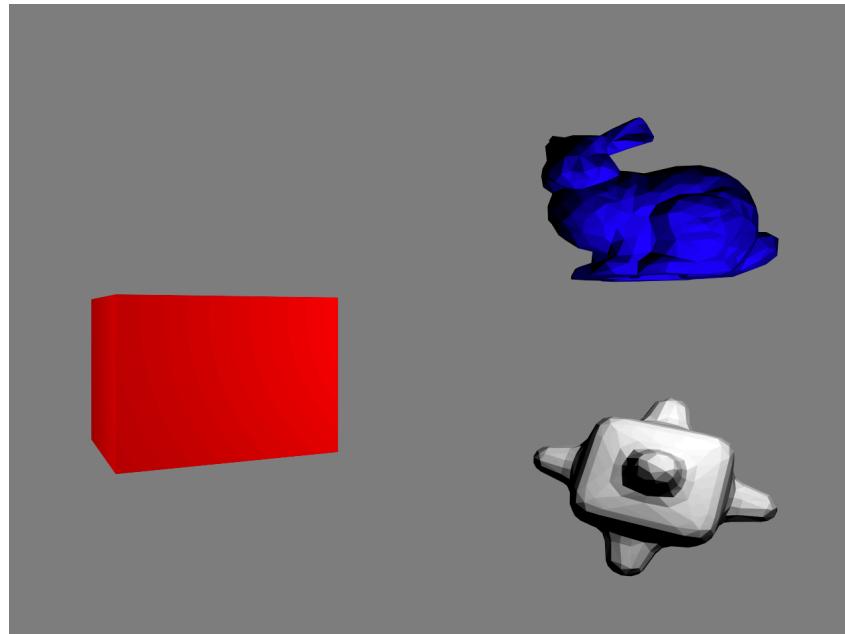
- Z-Rotation:



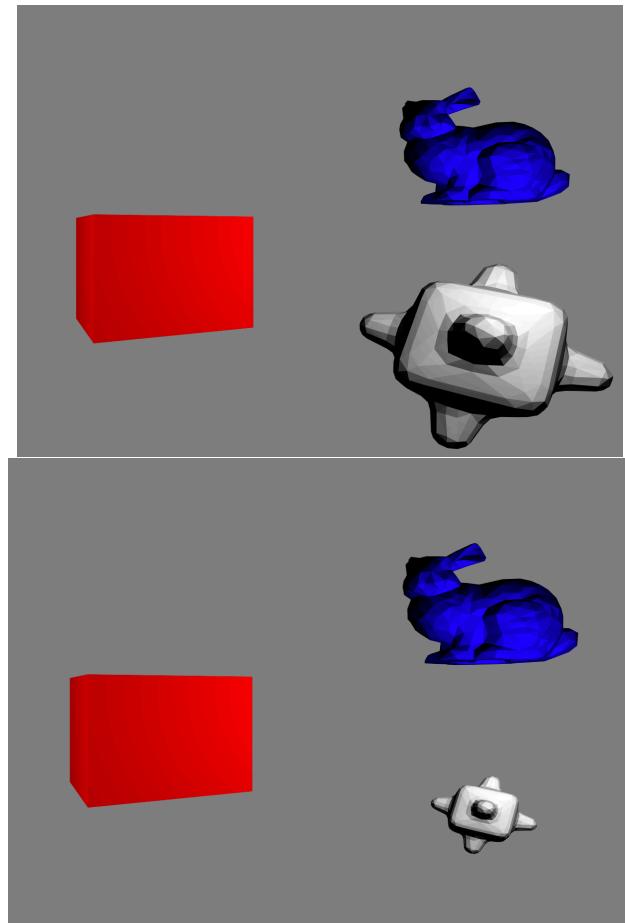
- X-Rotation:



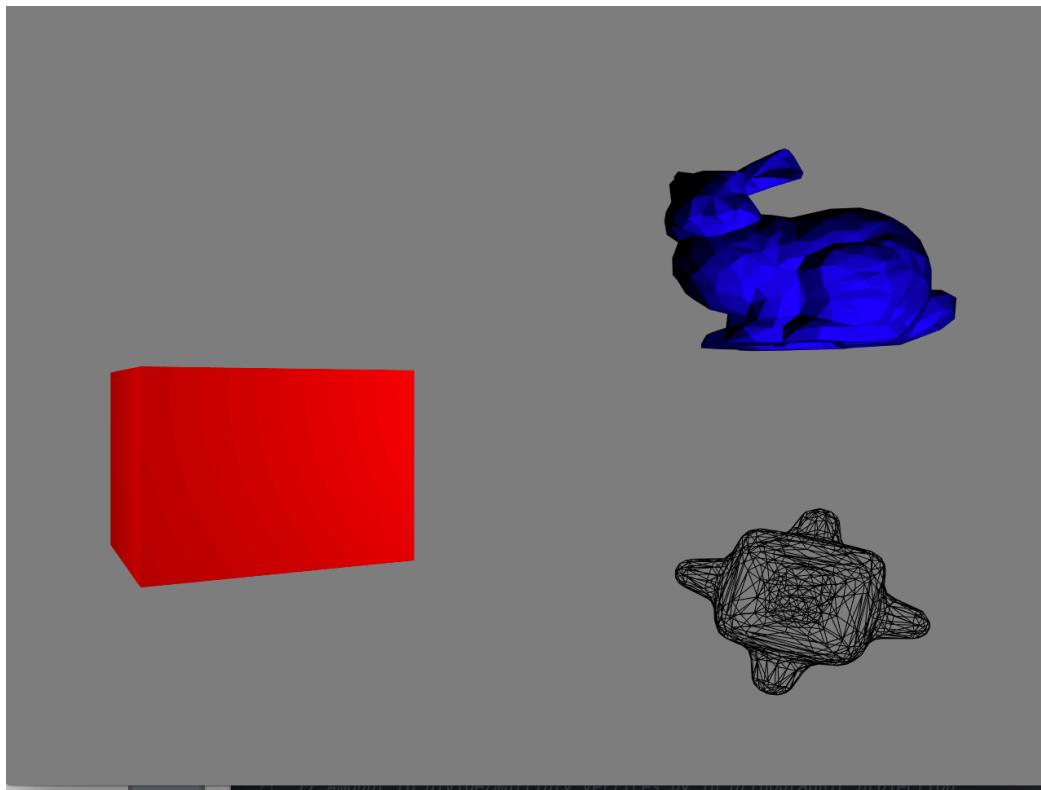
- Y-Rotation:



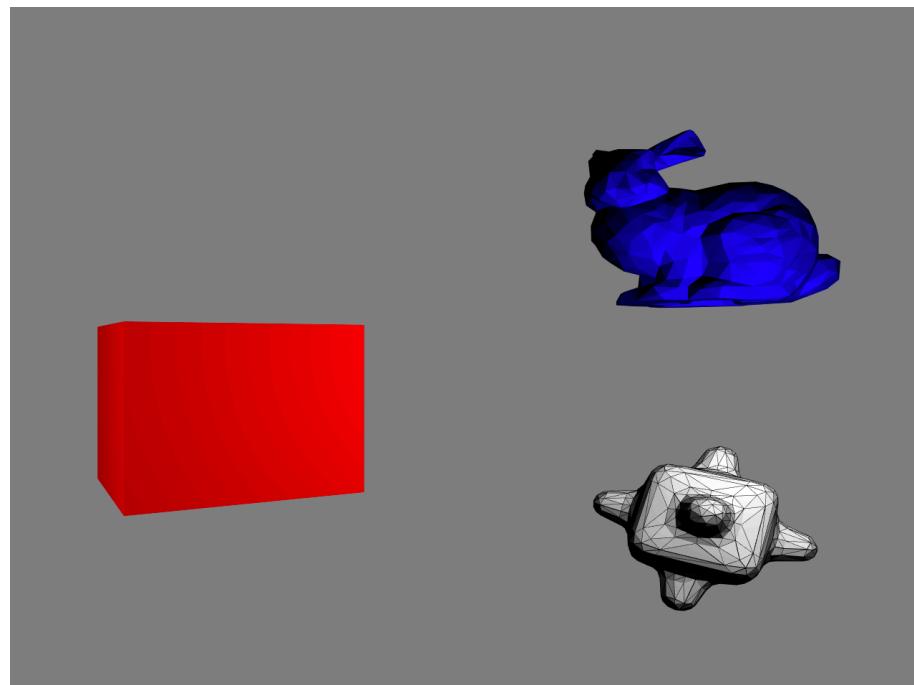
- Scaling UP & DOWN (Scaled back to normal size for the rest of the screenshots):



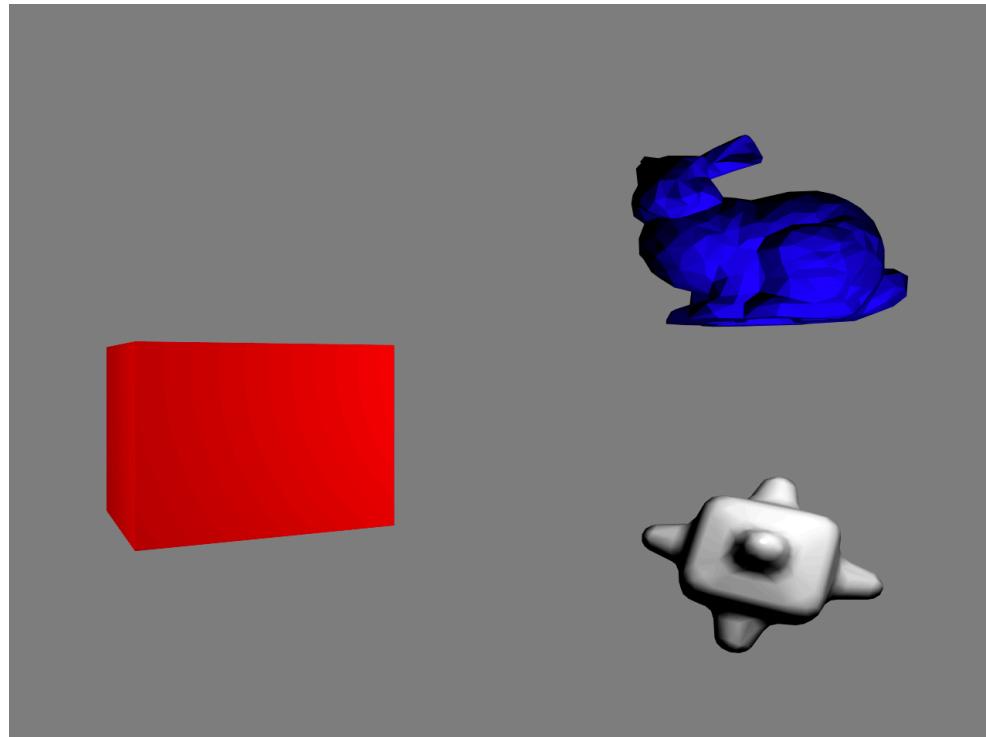
- Wireframe rendering:



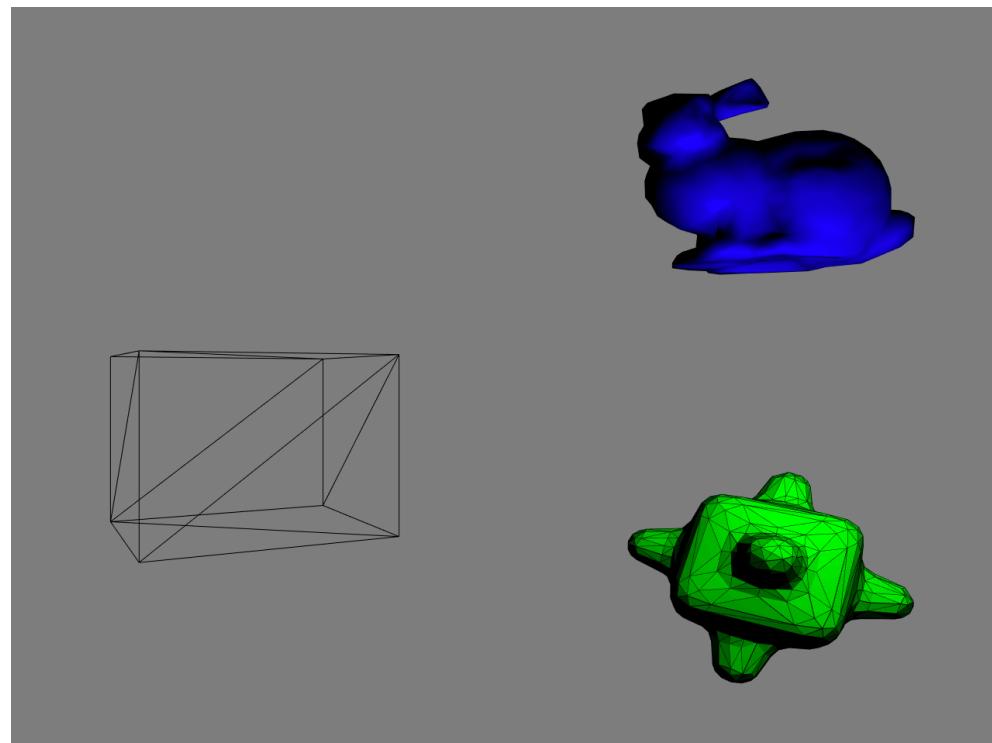
- Flat shading:



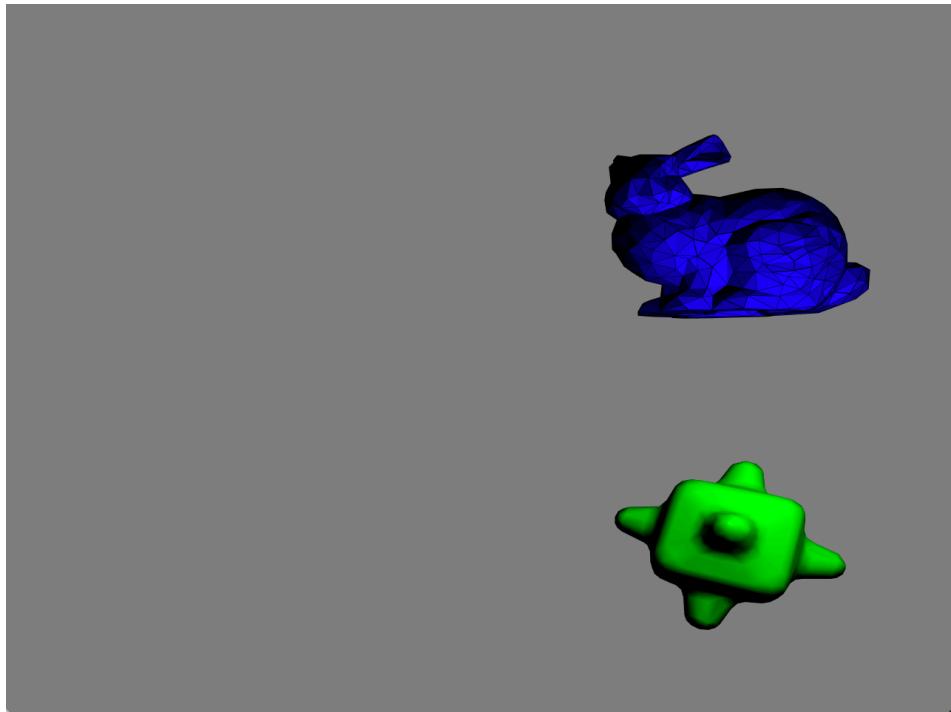
- Phong shading:



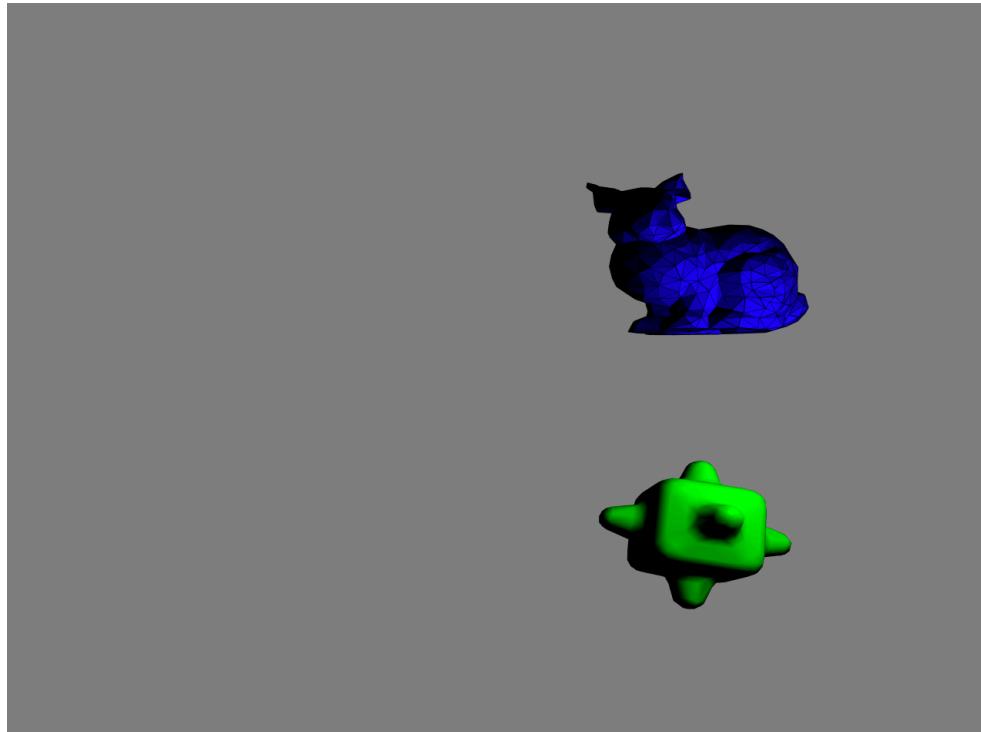
- All objects rendered differently:



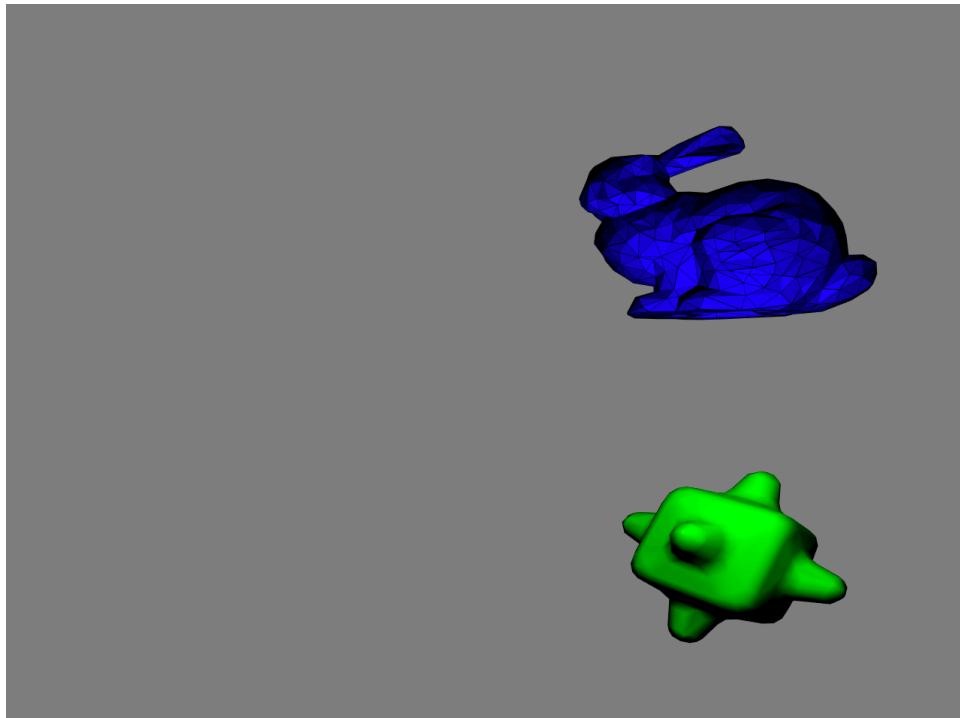
- Deleting the unit cube:



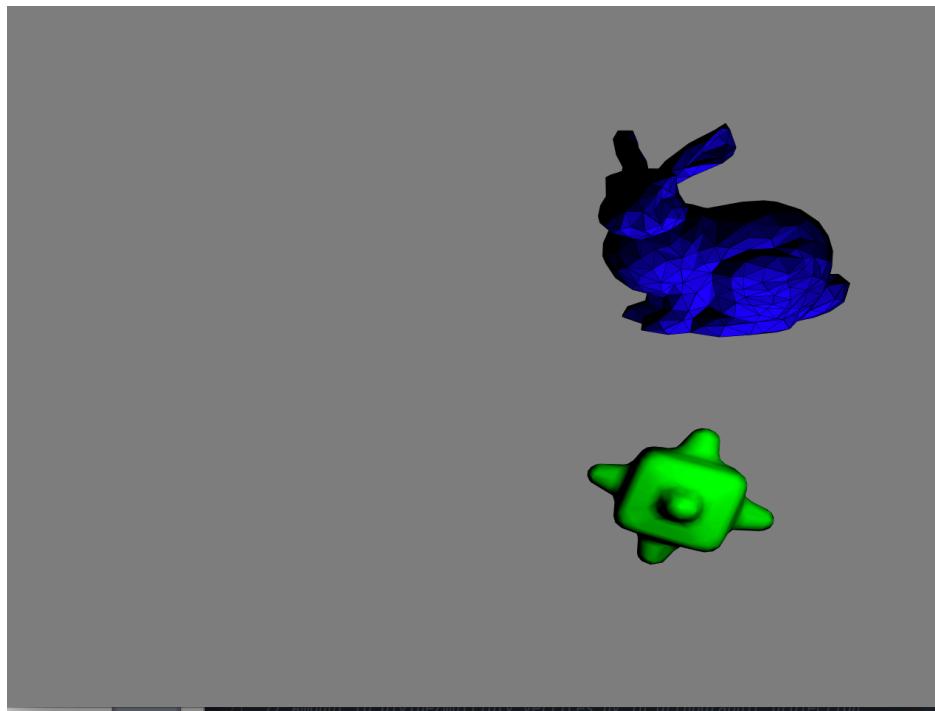
- Moving camera LEFT:



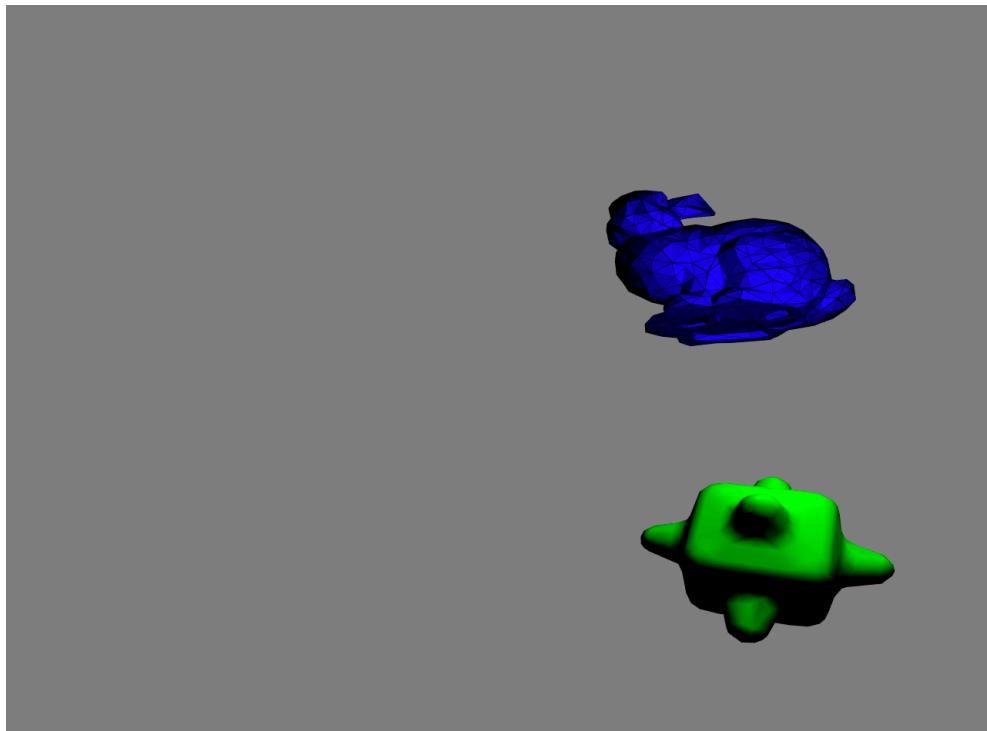
- Moving camera RIGHT:



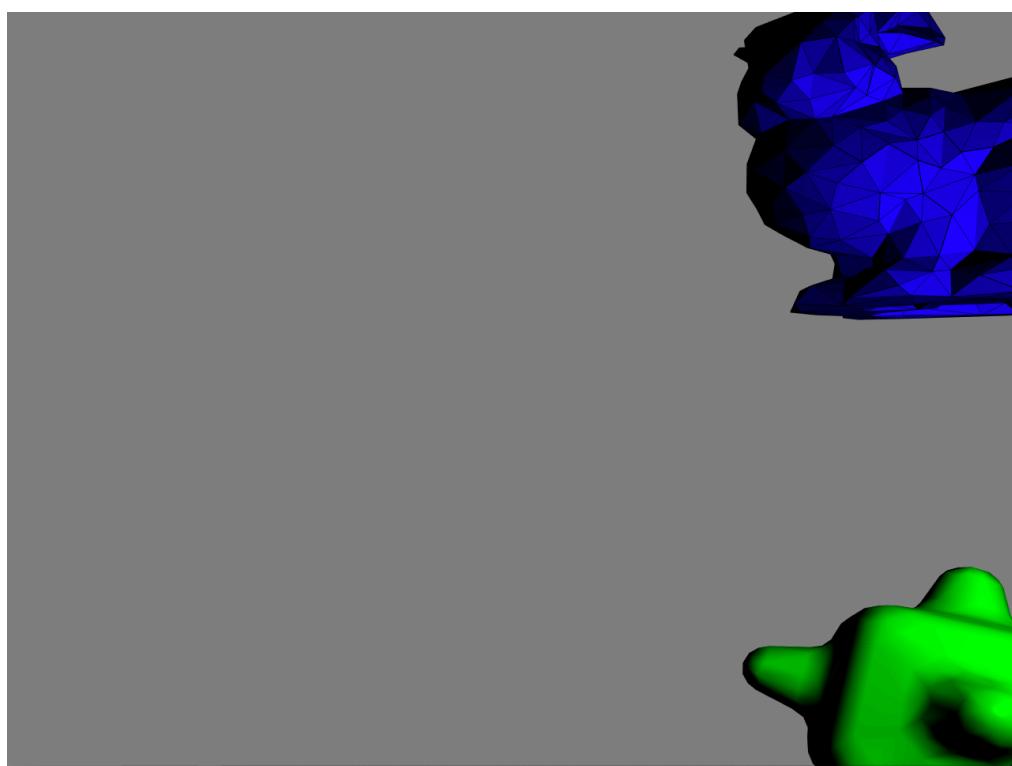
- Moving camera UP:



- Moving camera DOWN:



- Moving camera IN:



- Moving camera OUT:

