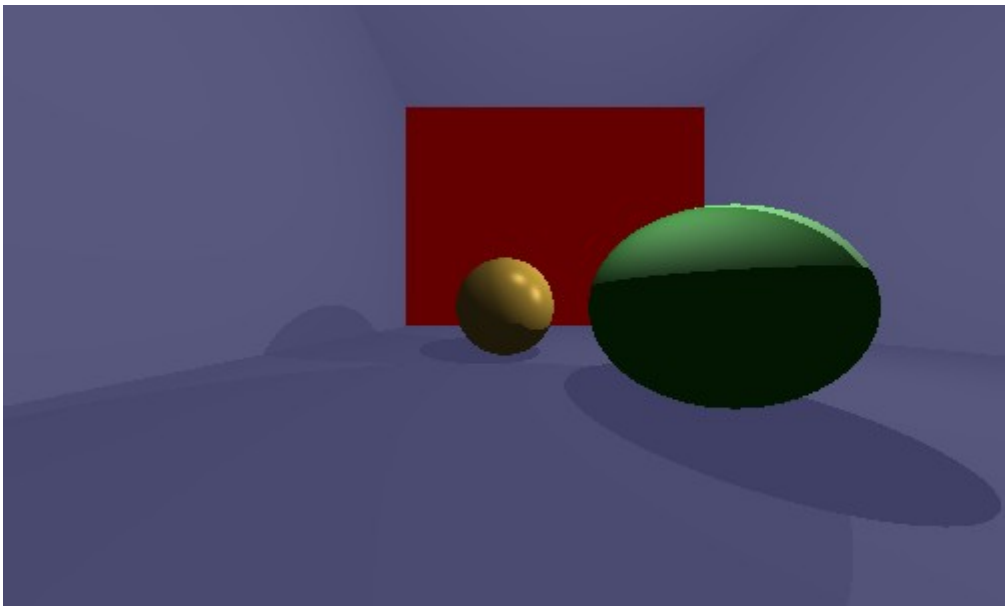
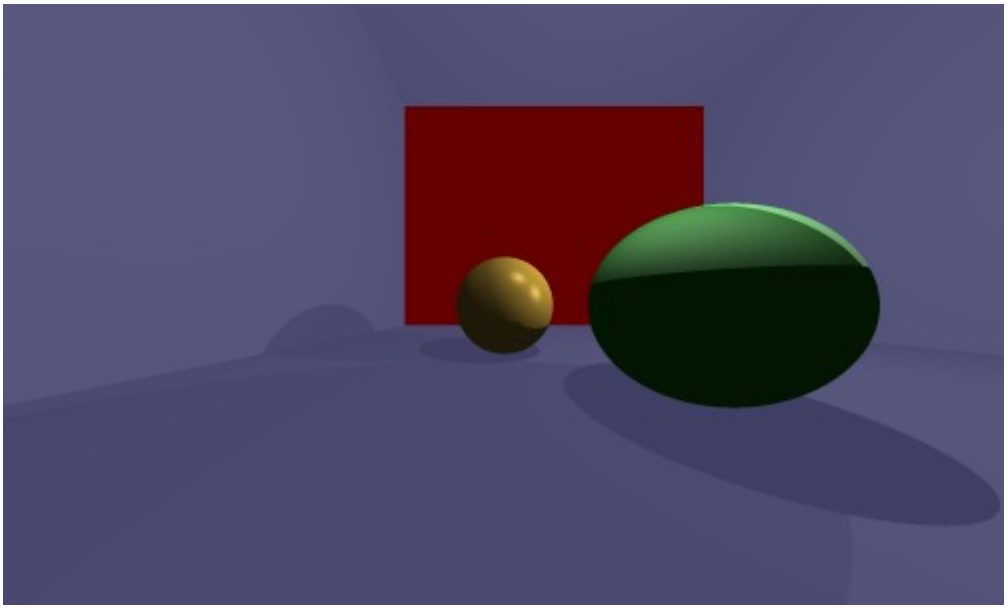
Assignment 1
Recursive ray tracing
COL781

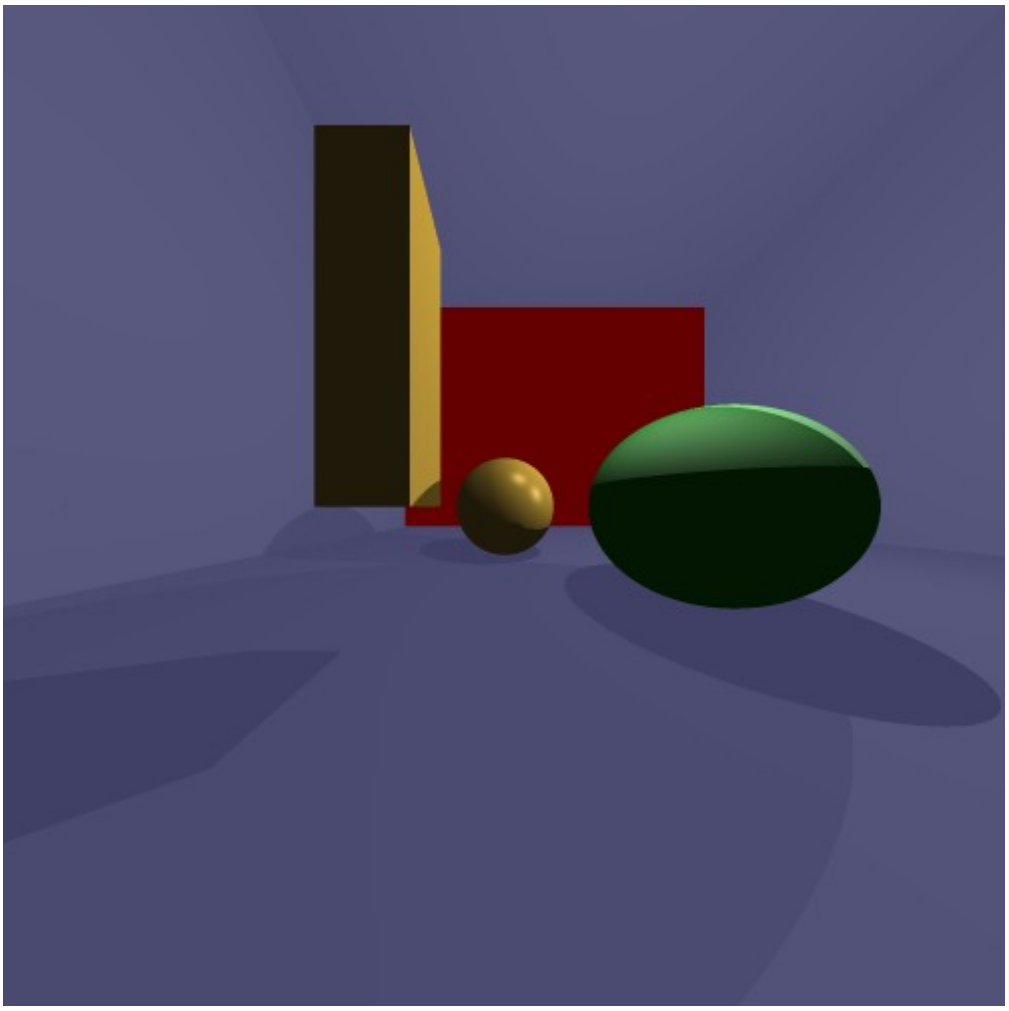
Abhishek Pathak – 2015CS10424
V Anoop – 2015CS10265

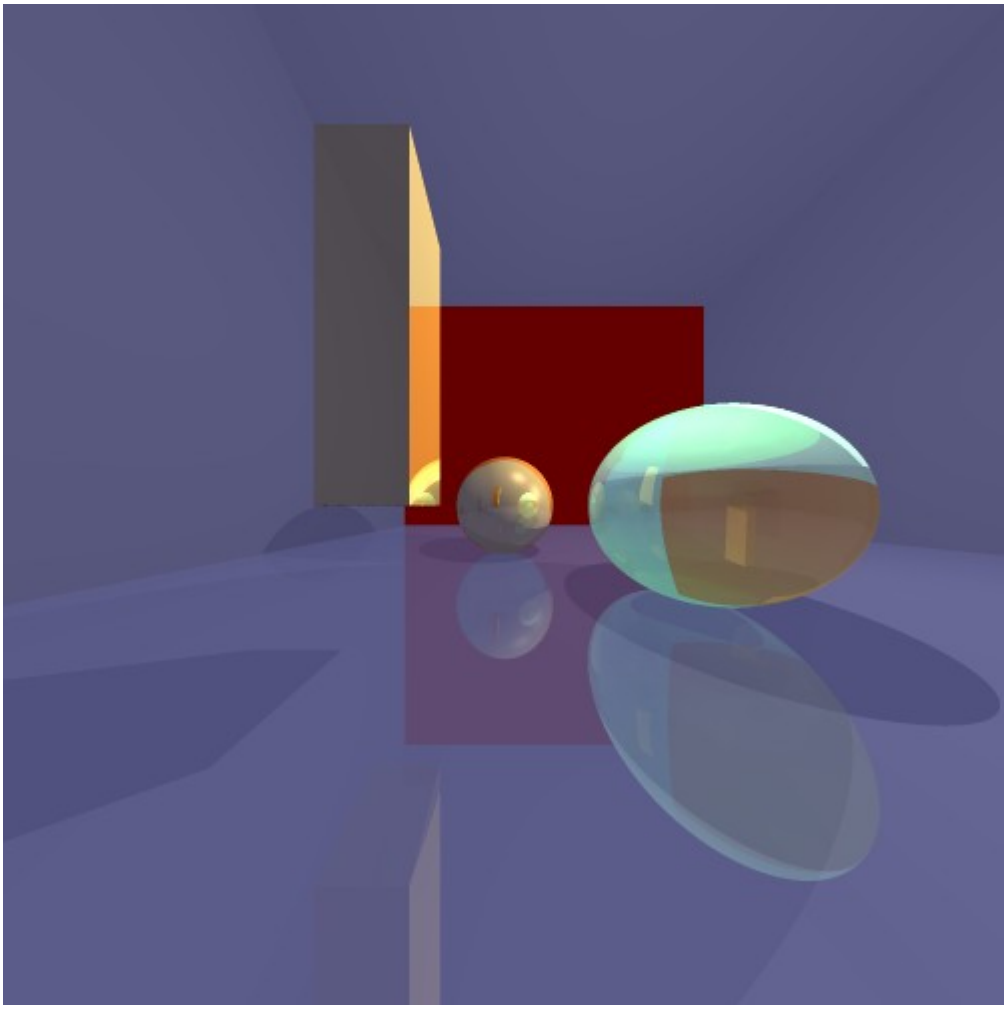
Description:
1. Implemented a ray tracer to accurately simulate optical effects and used Phong illumination model for light object interaction.
2. Made the ray tracer faster by using multiple threads for parallelization.
3. Made an input file specification in JSON format for easy description of scenes.
4. Implemented grid-based supersampling.
5. Experiments with different objects – we demonstrate ray **casting** as well as ray **tracing**.

Below we see simple ray casting with two spheres (gold and emerald), with supersampling level 1 and 3 respectively.



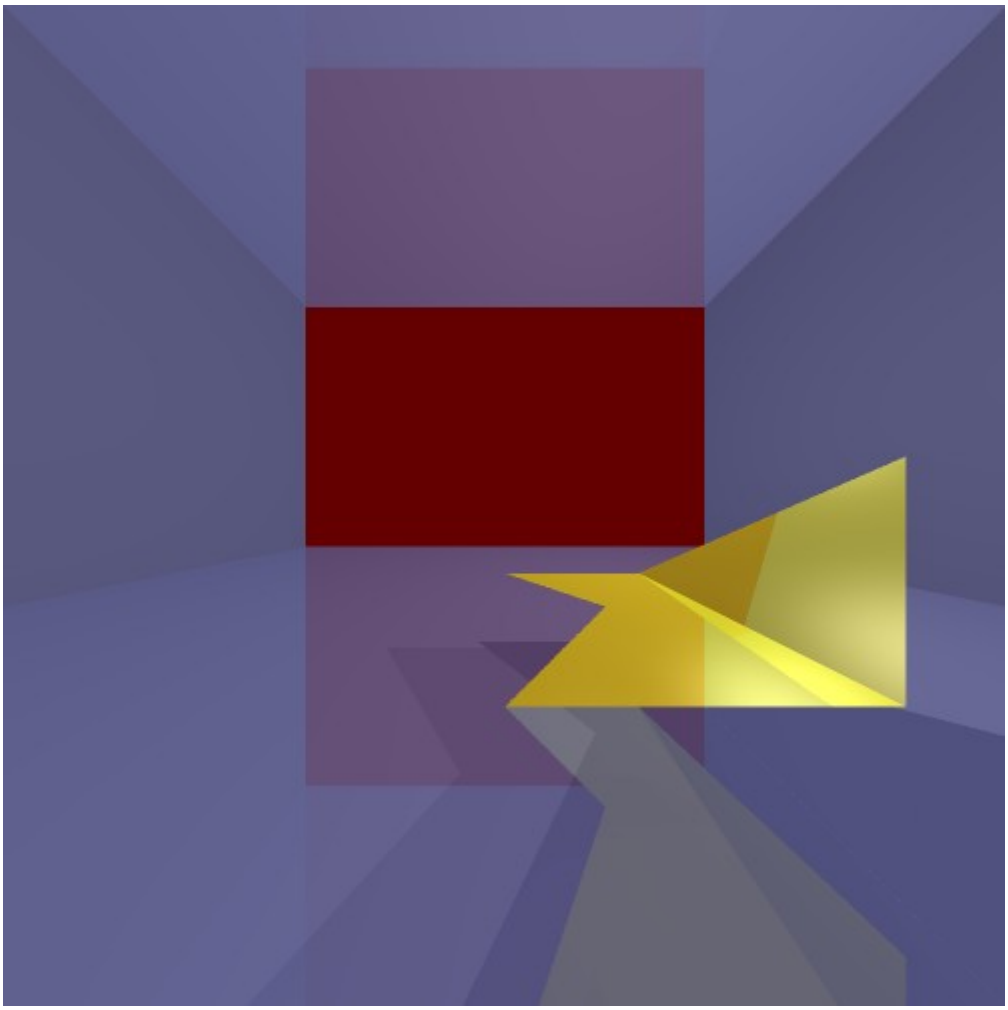




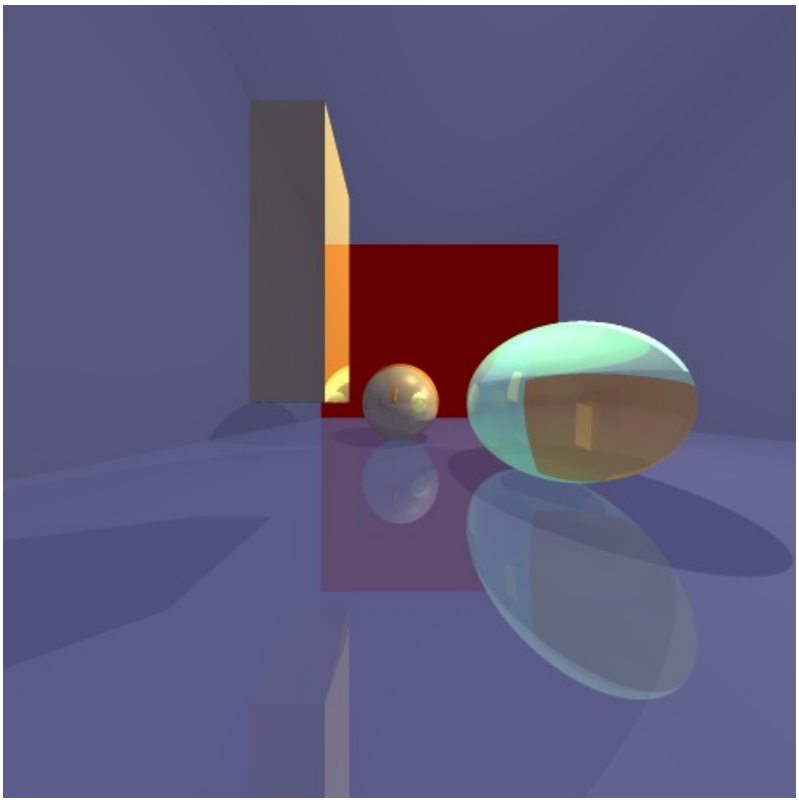


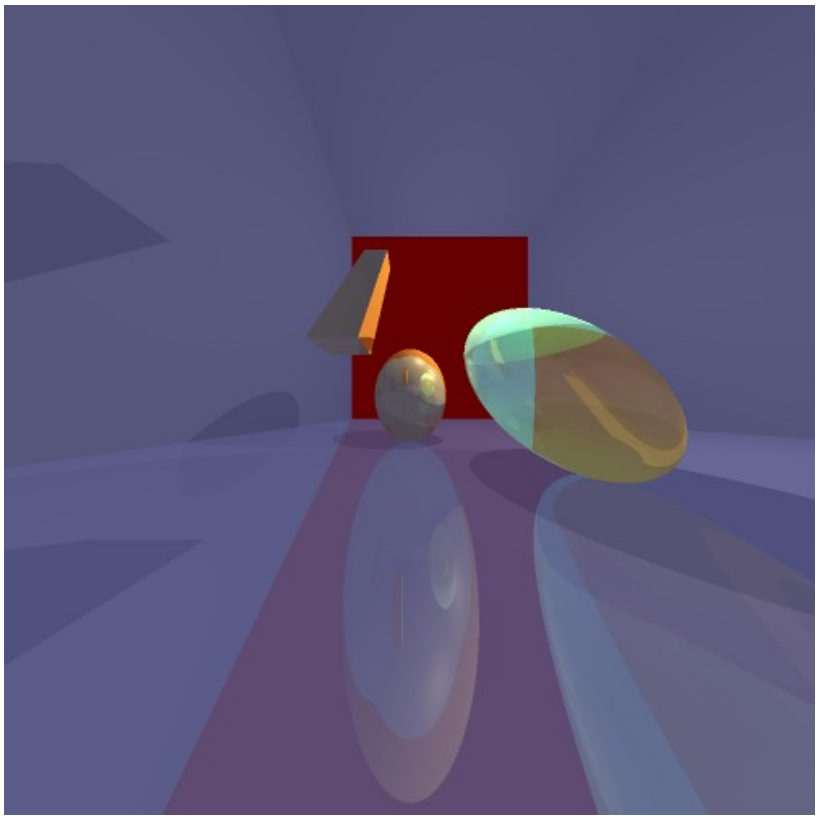
In the previous page, we see the same scene with max recursion depth = 0 and 5 respectively. The sphere on the right now has refraction effects as well. (supersampling level=3)

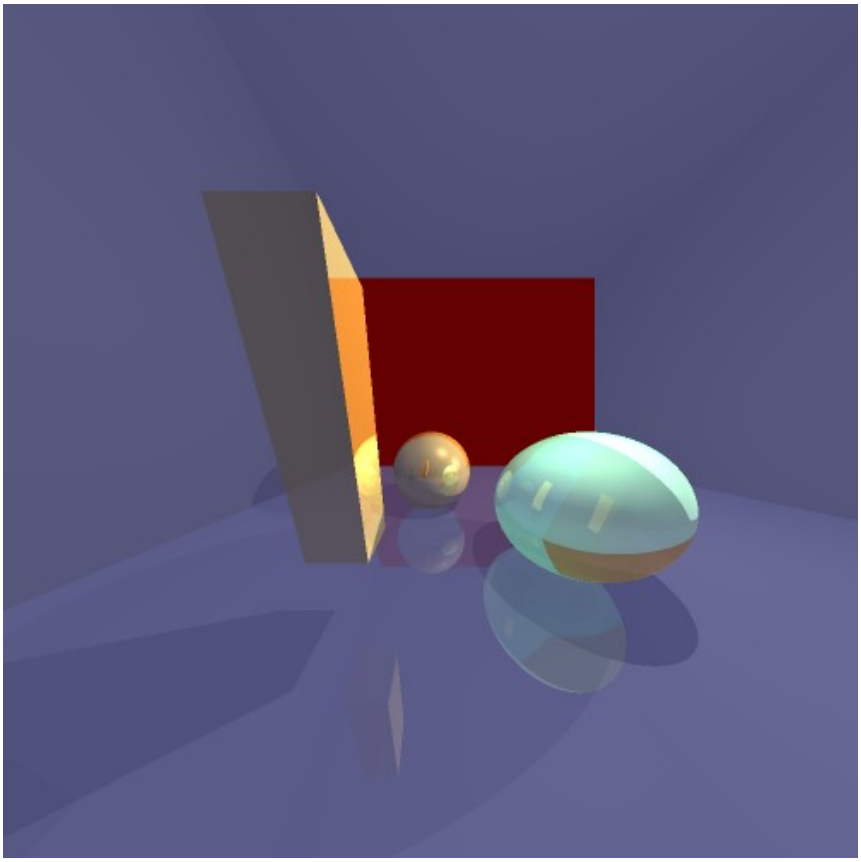
Now we show a concave and convex polygon with supersampling level=2.



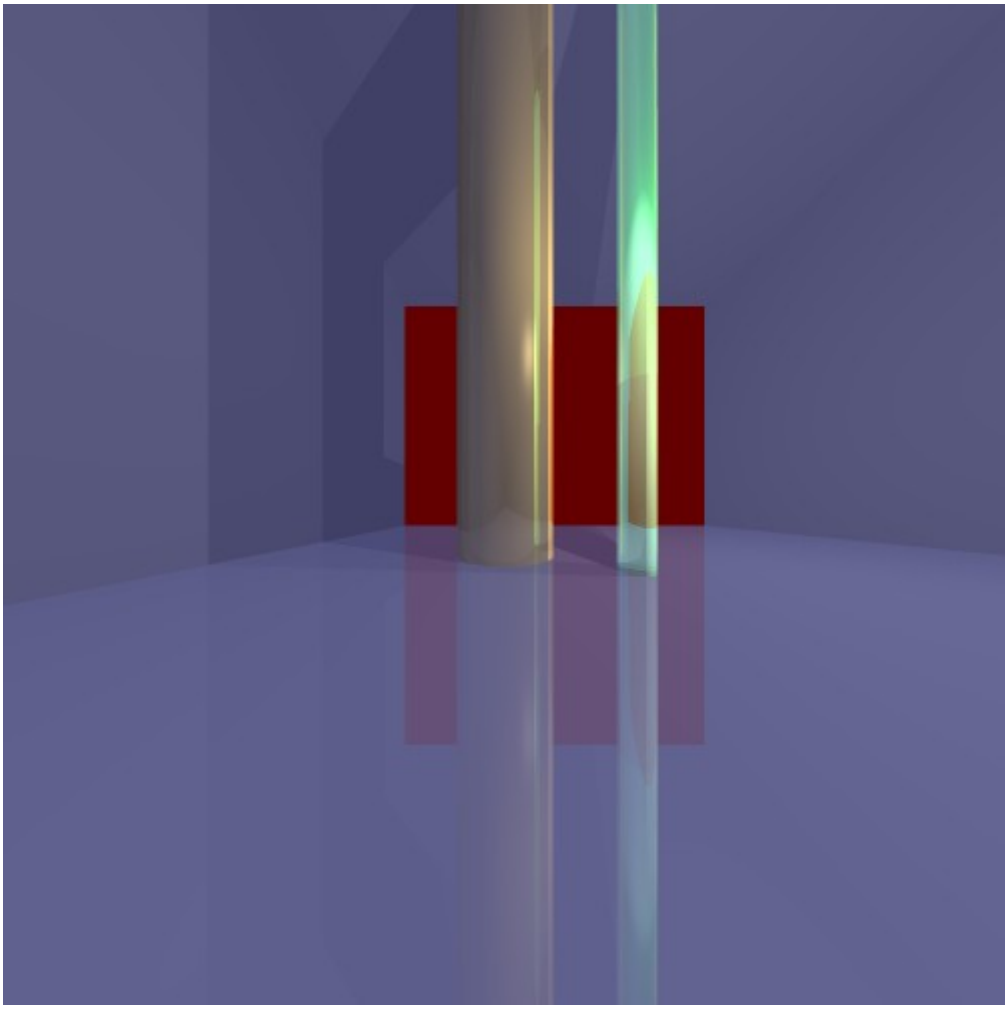
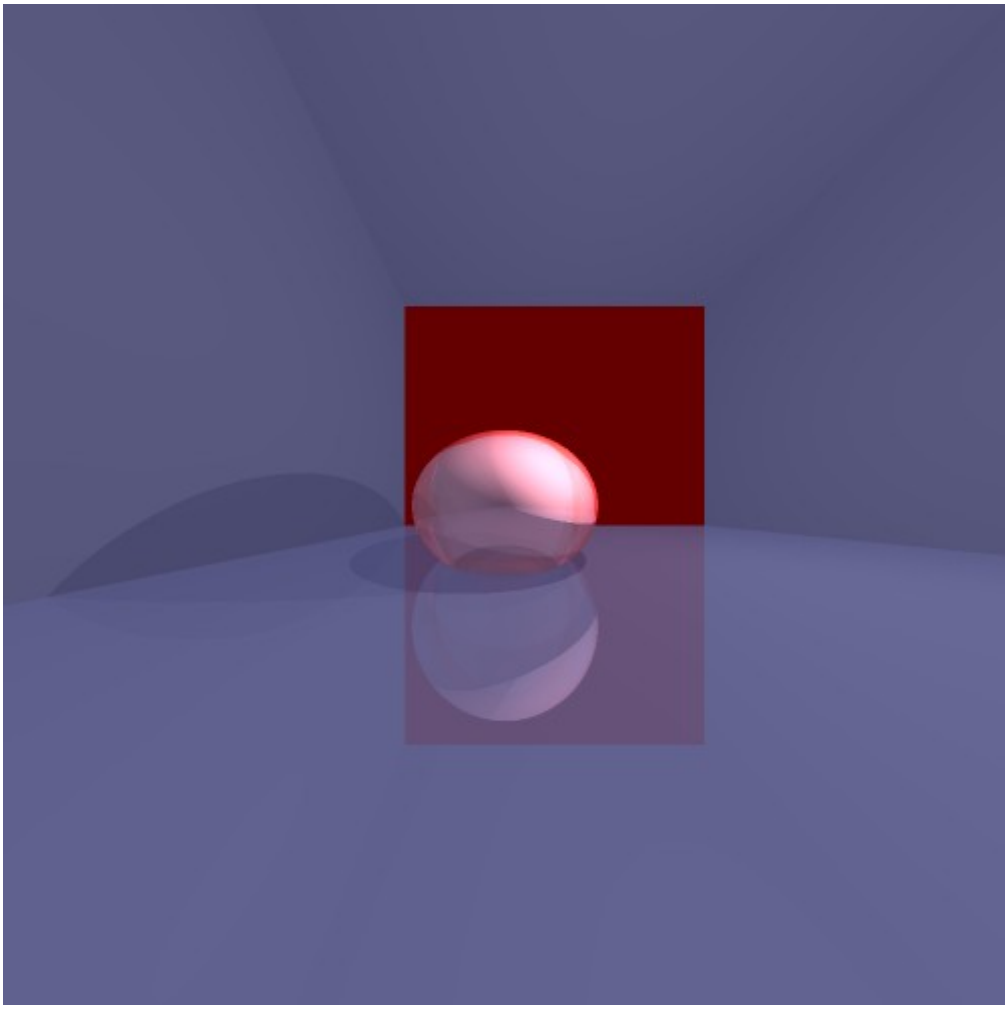
Now we see a scene from three different angles.







Now we show two cylinders (quadrics) (supersampling level=2). The green cylinder has transparency as well.



Now we show sphere enclosed in an ellipsoid (supersampling level=2).