Computer Science 102
Summer I 2009
Project 2 – Intermediate Ray Tracer

Due: midnight, Friday, 6/5/2009

Overview

For this project, you will extend the basic ray tracer you implemented for Project 1. Features of this ray tracer include: arbitrary aspect ratio, light attenuation, shadows, planes, and code enhancement (object array, function pointers, etc.).

Description

Your ray tracer should fulfill the following requirements:

- arbitrary aspect ratio – e.g., 640x480, 500x500, 1024x768, 480x640, etc.
- light attenuation – light loses power as distance grows
- shadows
- planes
- code enhancement and re-organization –
  - light array – for multiple light sources
  - new data types – **SCENE_T** and **IMG_T**
  - multiple source files – ray.c, vector.c, sphere.c, plane.c, and light.c, with associated header files
  - function pointers
  - makefile – must be included for compiling code
- scene geometry must include at least 1 light source, 2 spheres, a checkerboard ground plane, and a sky (or background)

Your ray tracer must produce the sample image shown below. In addition, you must create another image of your design (be creative!). Your code must be well-structured and commented.

(continued on reverse)

Sample Output

Here's a sample scene: