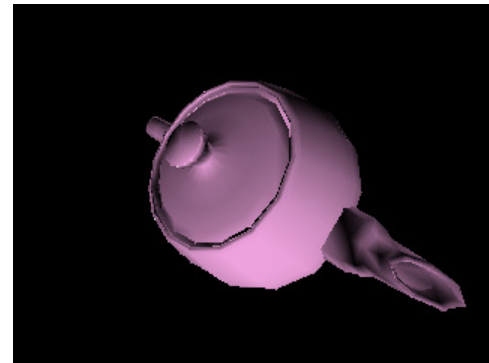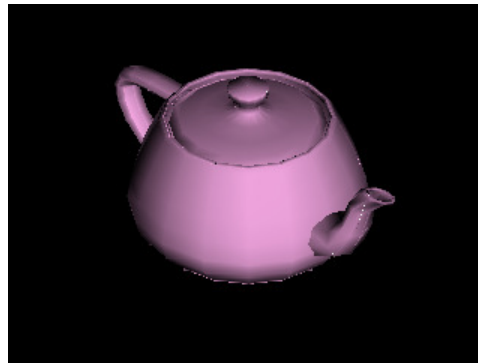# Assignment 3:
Transformation and Projection

- **Task:** Integrate the transformation and projection to Gz lib

- **Materials:** **A lot**. Check HW3.pdf for some suggestions.
  NOTE: There is an important update on Sep 26. Also check HW3.pdf.
  - Homogenous coordinate
  - 3D transformations (rotation, translation, scaling)
  - Projections (lecture slides)

- Deadline: **September 30, 2010 at 23:00**

Assignment 3:
Transformation and Projection

- Pipeline:

```
┌──────────┐
│ 3D model │
└──────────┘
     │
     │        ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
     │        │              GzMatrix transMatrix
     │        │ ┌─────────────────────┐           │
     └────────▶│ │ 3D Transformations  │           │
              │ └─────────────────────┘           │
              │           │                         │
              │           ▼                         │
              │ ┌─────────────────┐                 │
              │ │   Camera view   │                 │
              │ └─────────────────┘                 │
              └ ─ ─ ─ ─ ─ ─│─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
          ┌ ─ ─ ─ ─ ─ ─│─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
          │             ▼          GzMatrix prjMatrix
          │  ┌─────────────────┐                     │
          │  │   Projection    │                     │
          │  └─────────────────┘                     │
          └ ─ ─ ─ ─ ─ ─ ─│─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
              ┌ ─ ─ ─ ─ ─│─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
              │          ▼        xViewport, yViewport
              │ ┌─────────────────┐  wViewport, hViewport
              │ │    Viewport     │                     │
              │ └─────────────────┘                     │
              └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
```