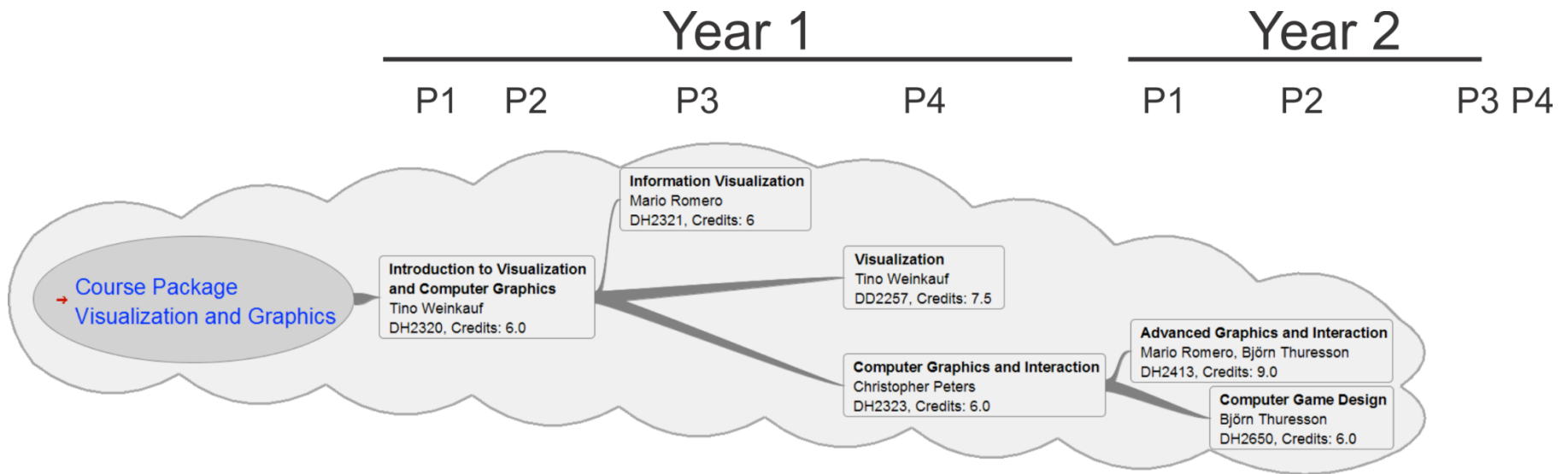




*Introduction to Visualization and Computer Graphics*  
*DH2320, Fall 2015*  
*Prof. Dr. Tino Weinkauff*

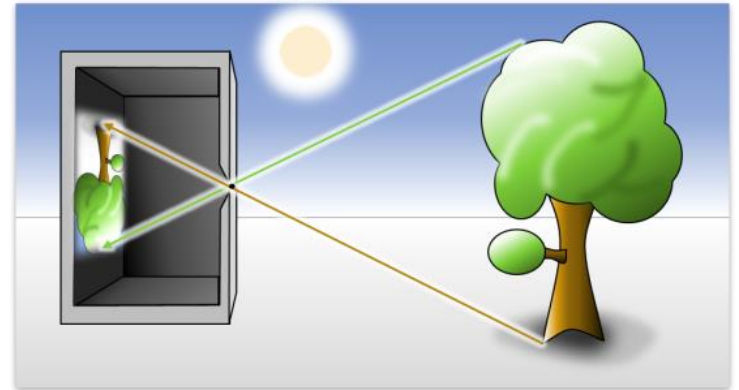
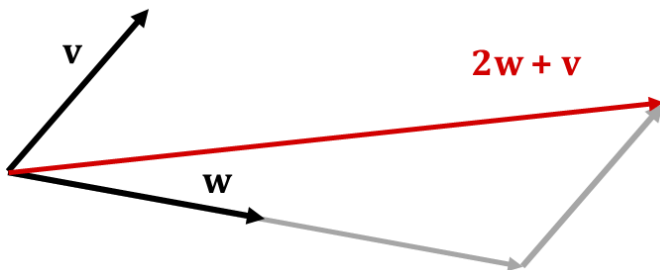
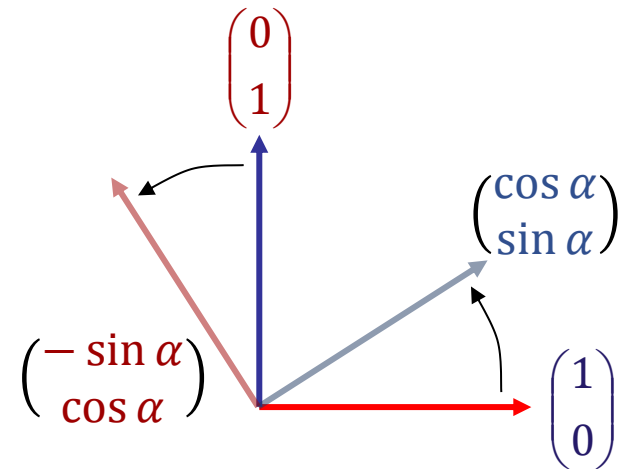
# ***Introduction to Visualization and Computer Graphics***

Overview of further studies



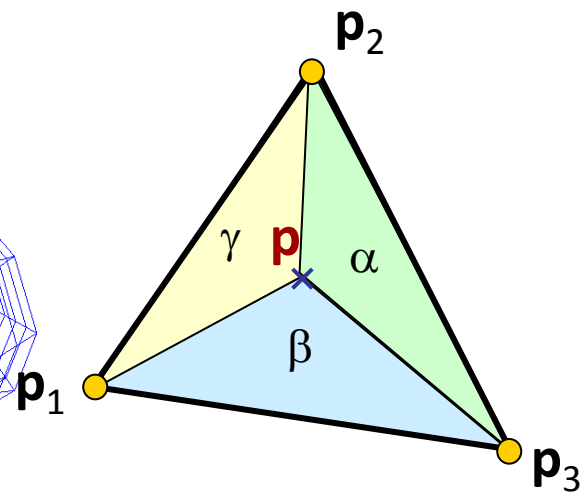
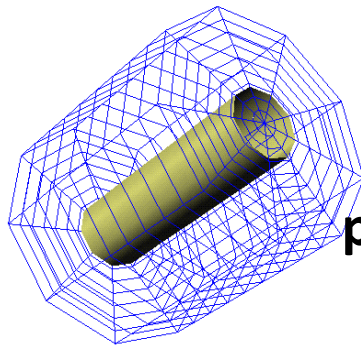
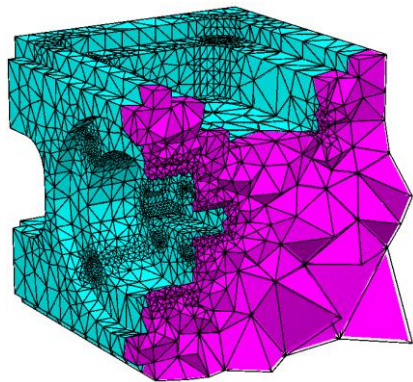
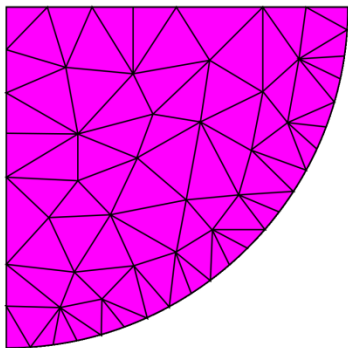
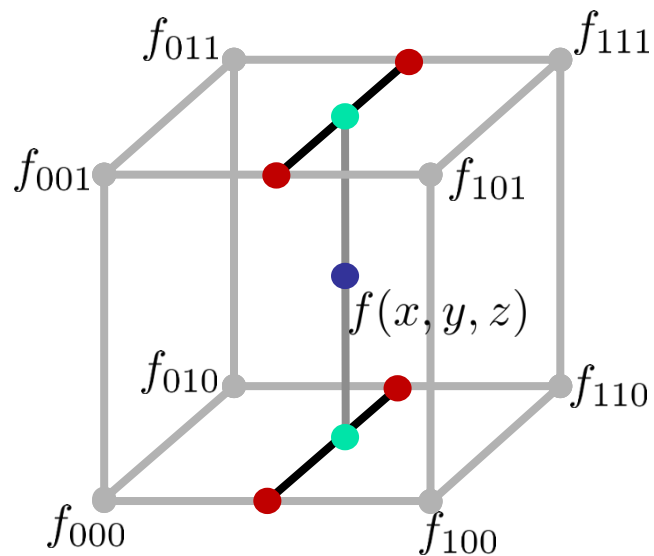
- Thursday, 14 January 2016, at 08:00 - 10:00
- Location: V2, V3, V32
- 4 hand-written A4 pages allowed
- non-programmable calculator allowed
  
- Re-Exam: Monday, 14 March 2016

- Mathematics
  - Linear algebra
    - vectors / points
    - linear maps / matrices
  - Projective geometry
    - Homogeneous coordinates
    - Perspective transformations

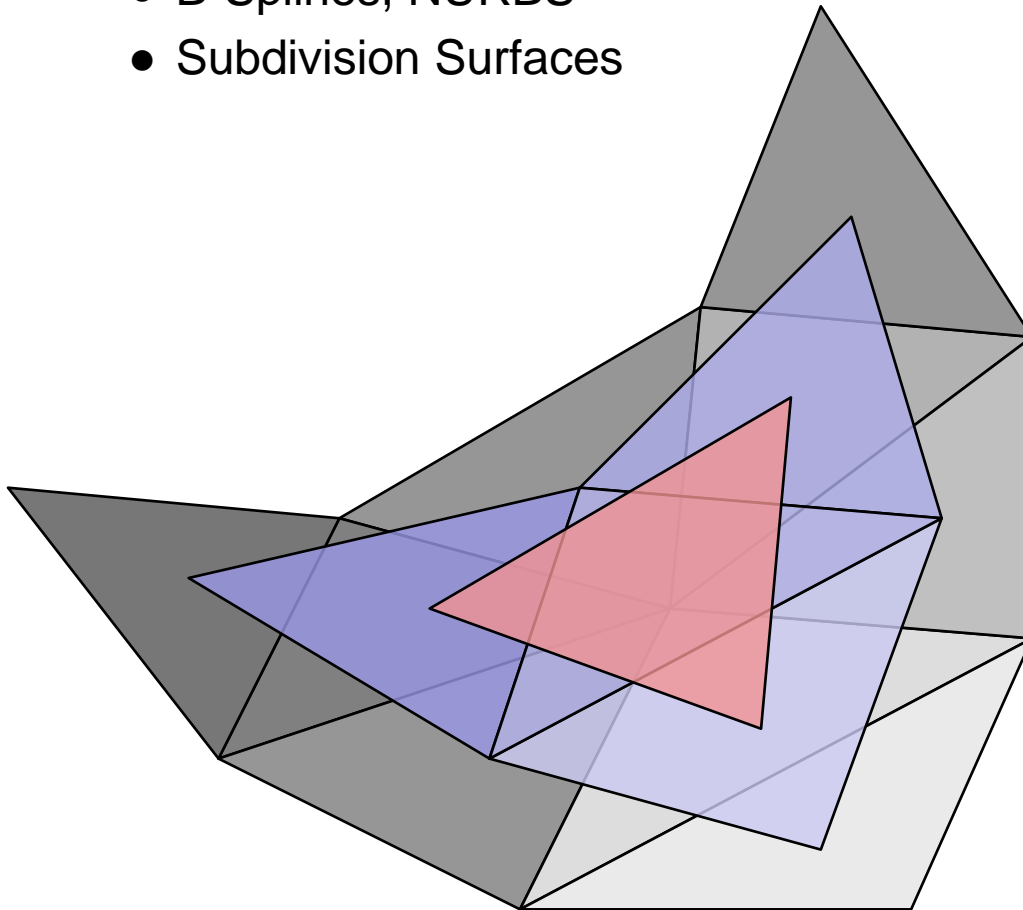


- Grids and Interpolation

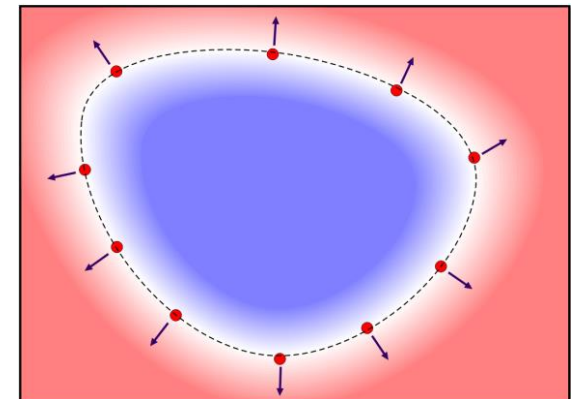
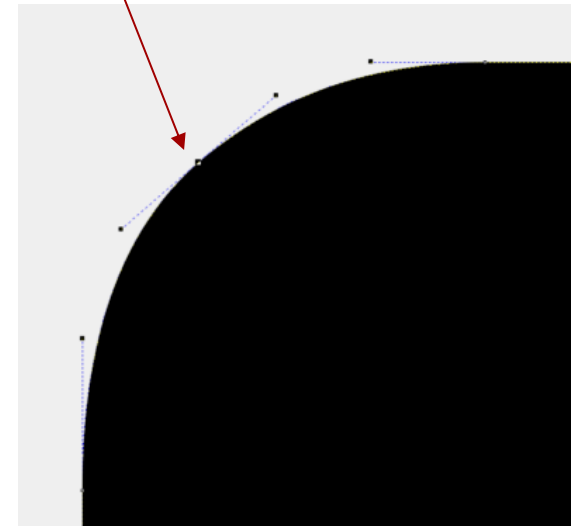
- Structured Grids
- Unstructured Grids
- Linear interpolation
- Bilinear interpolation
- Trilinear interpolation
- Barycentric coordinates



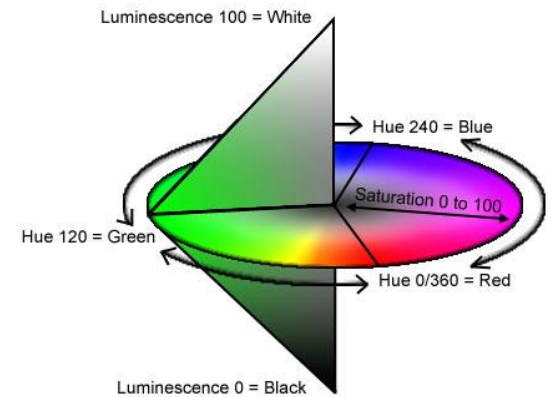
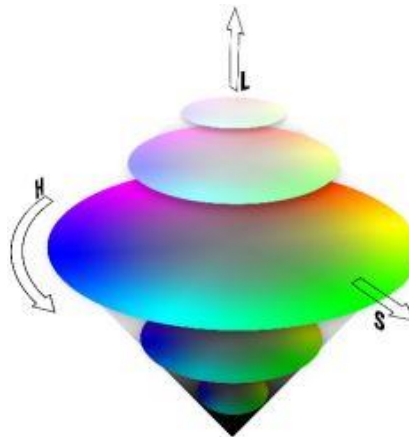
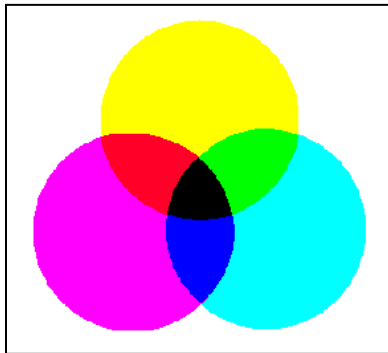
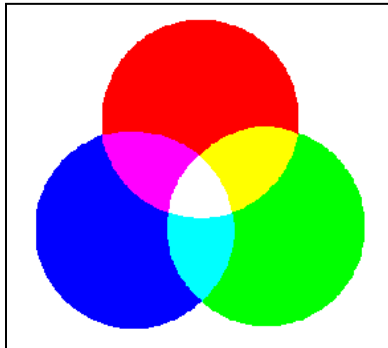
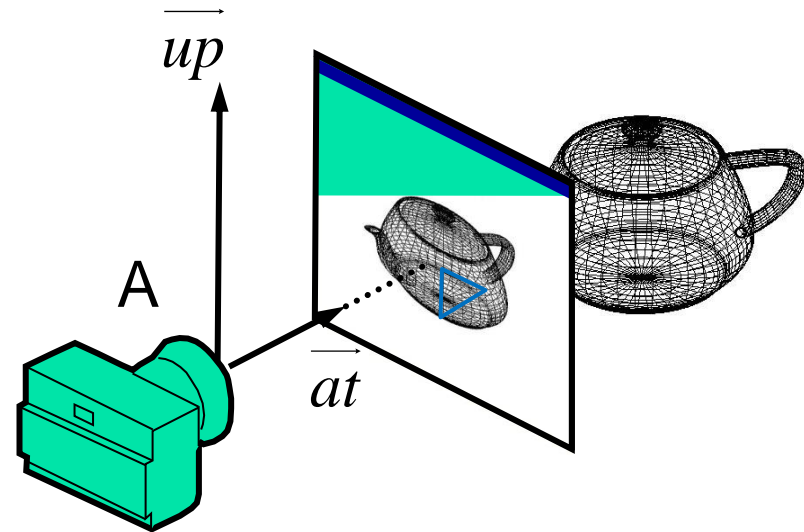
- Modeling
  - Curves and Surfaces
    - Bezier
    - B-Splines, NURBS
    - Subdivision Surfaces



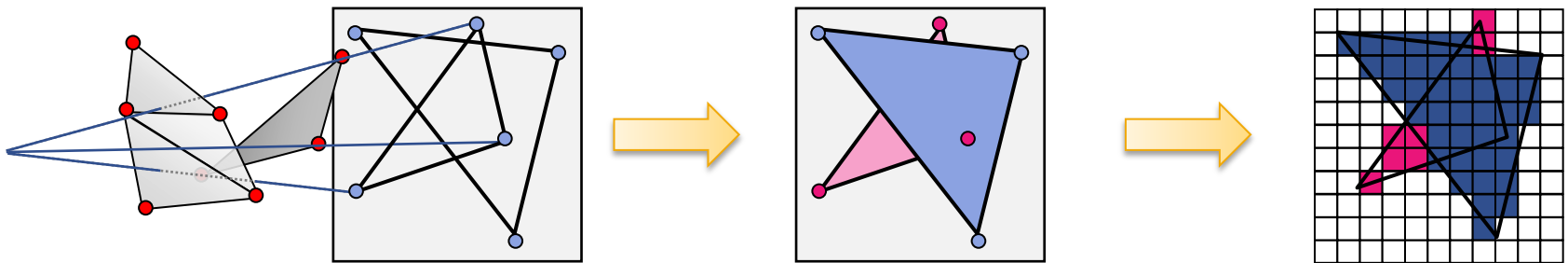
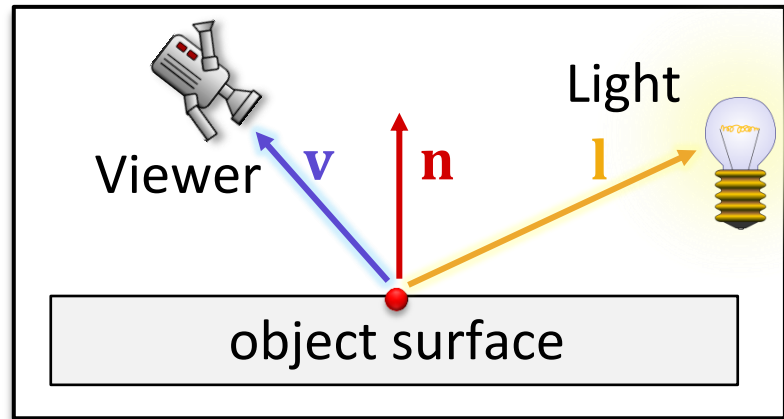
Bezier



- Color and Projection
  - Phong illumination model
  - Color models
  - Color perception

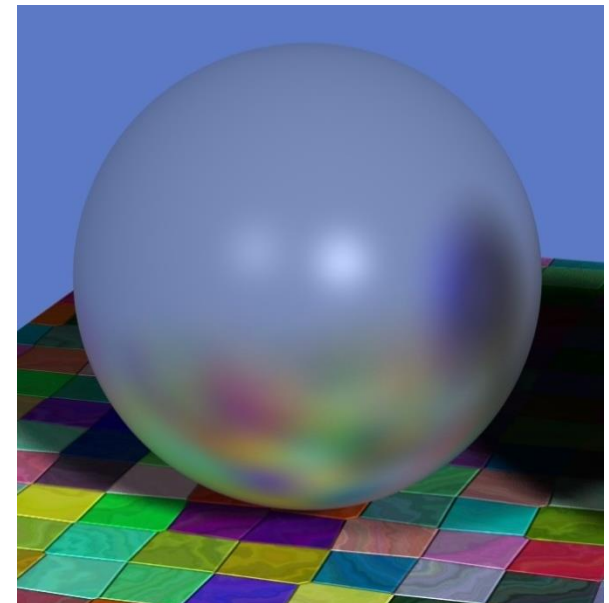
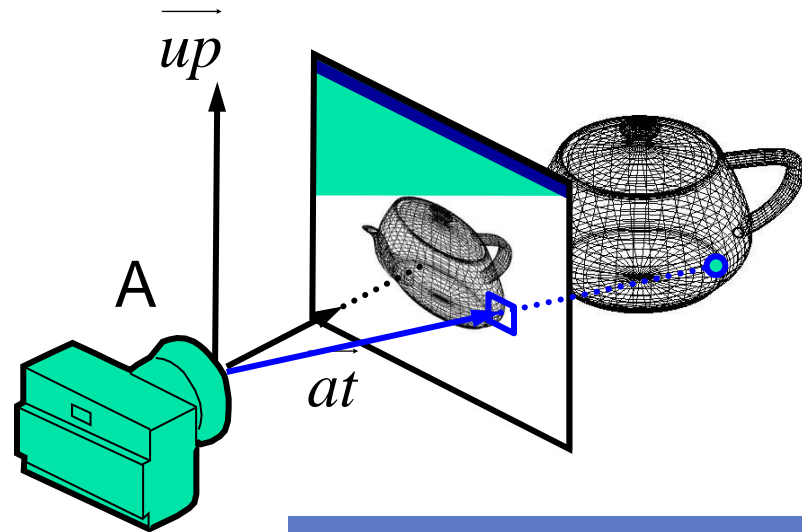
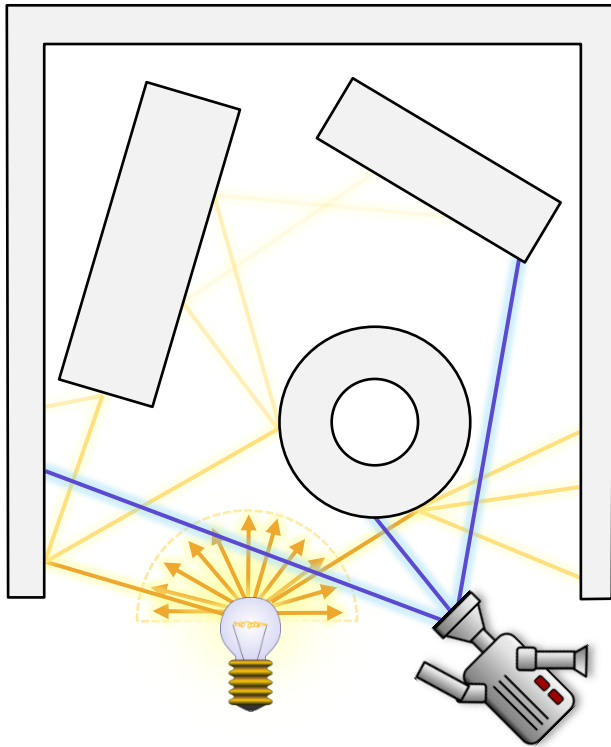


- Visibility and Shading
  - Phong illumination model
  - Clipping
  - Visibility





- Raytracing



- Raycasting
  - Visualization method for 3D scalar fields
  - Main applications in life sciences (medicine, biology, ...)

