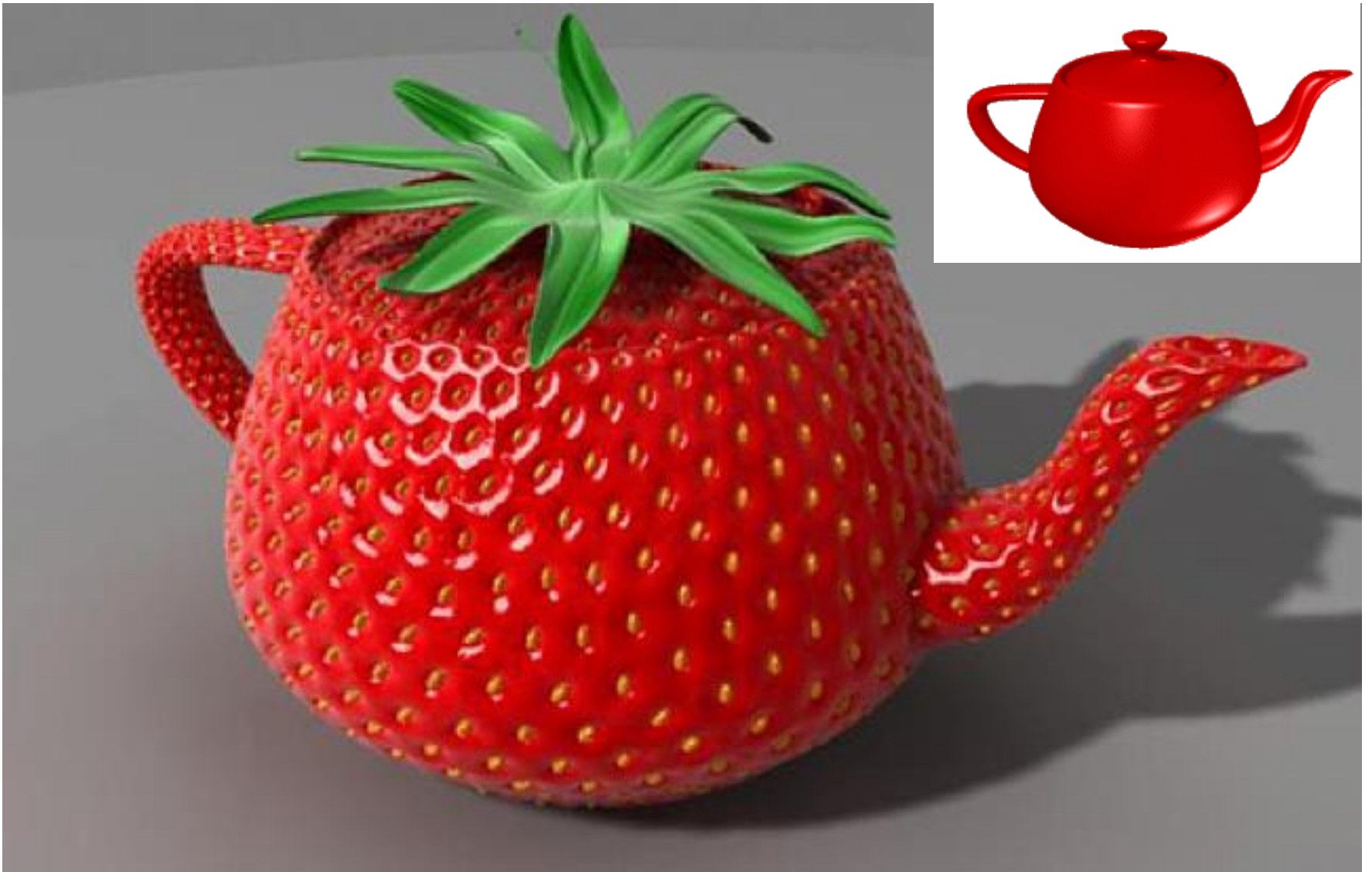


Topic 11:

Texture Mapping

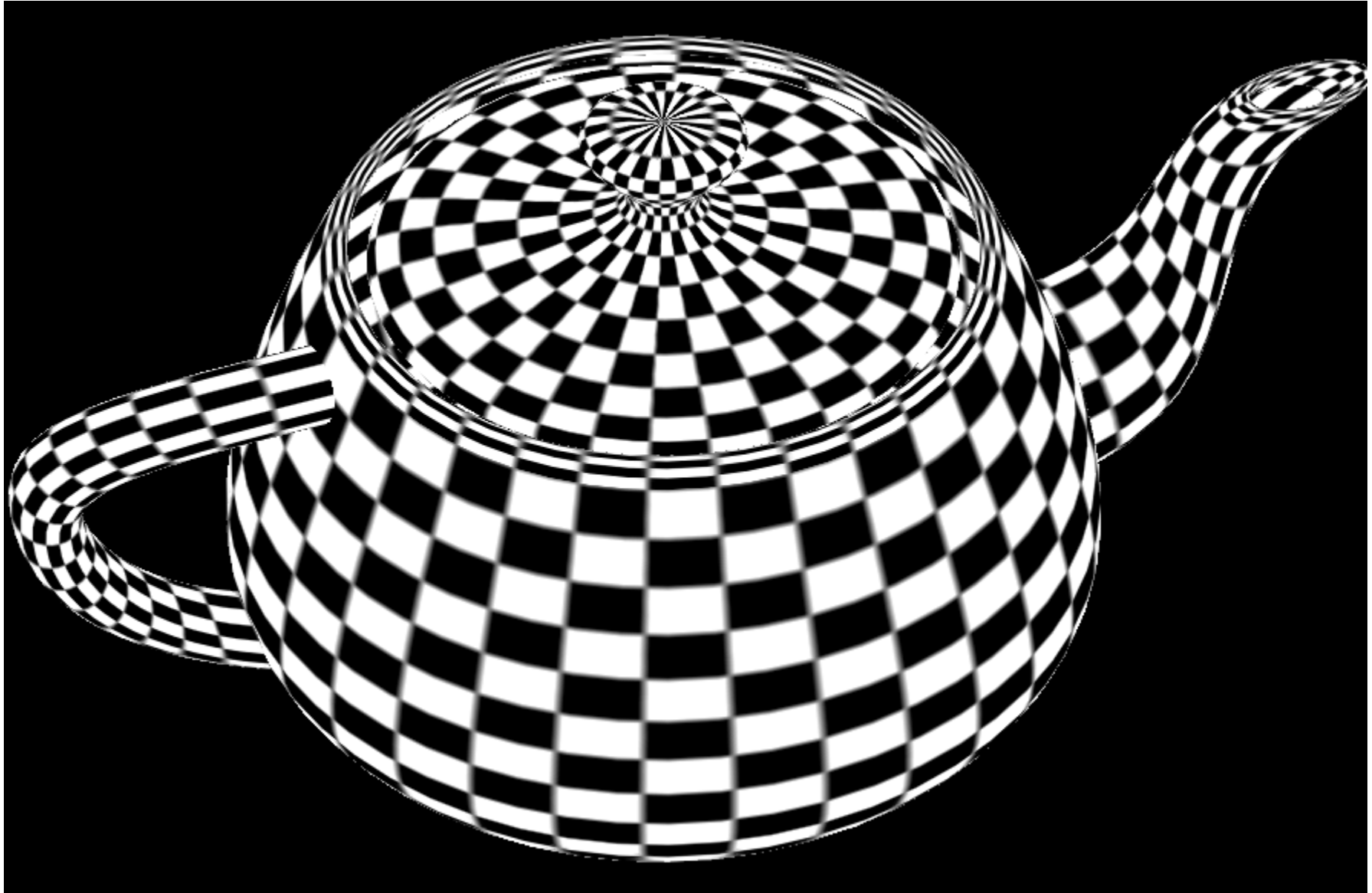
- Motivation
- Sources of texture
- Texture coordinates
- Bump mapping, mip-mapping & env mapping



Texture sources: Photographs



Texture sources: Procedural



Texture sources: Solid textures



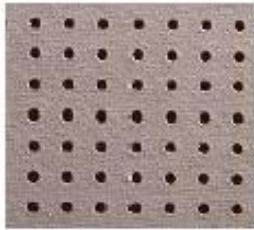
Texture sources: Synthesized



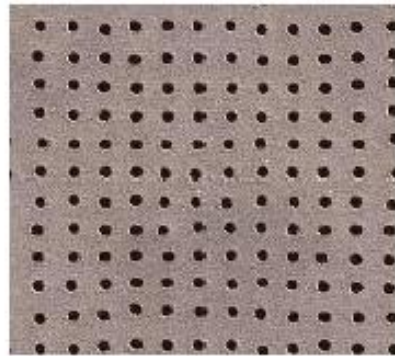
(e)



(f)



(g)



(h)



(i)



(j)



Original



Synthesized



Original

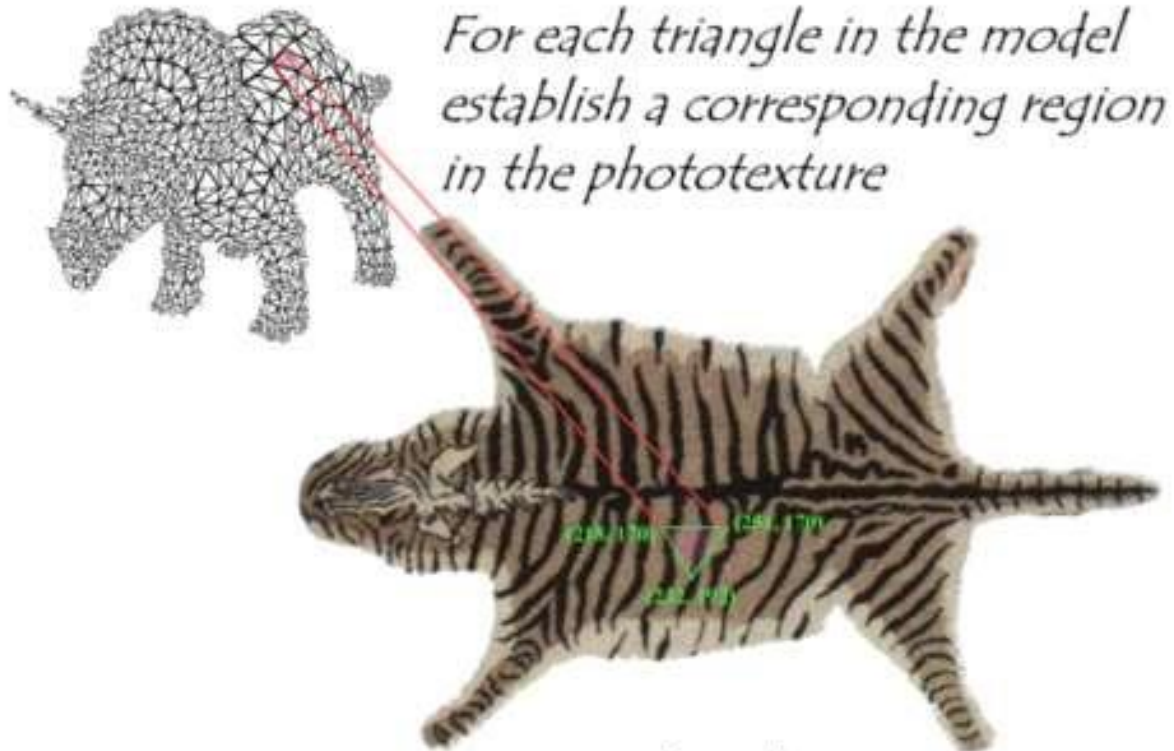


Synthesized



Texture coordinates

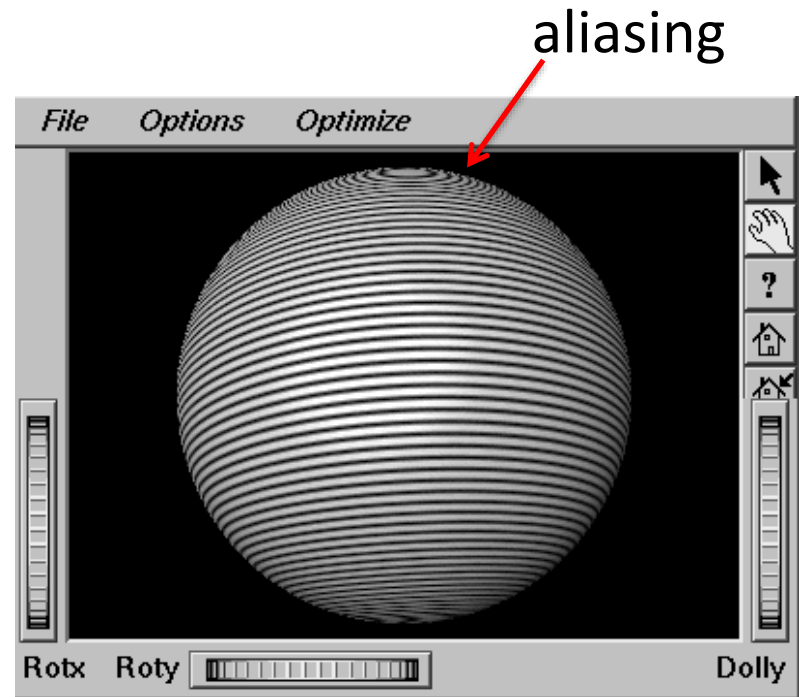
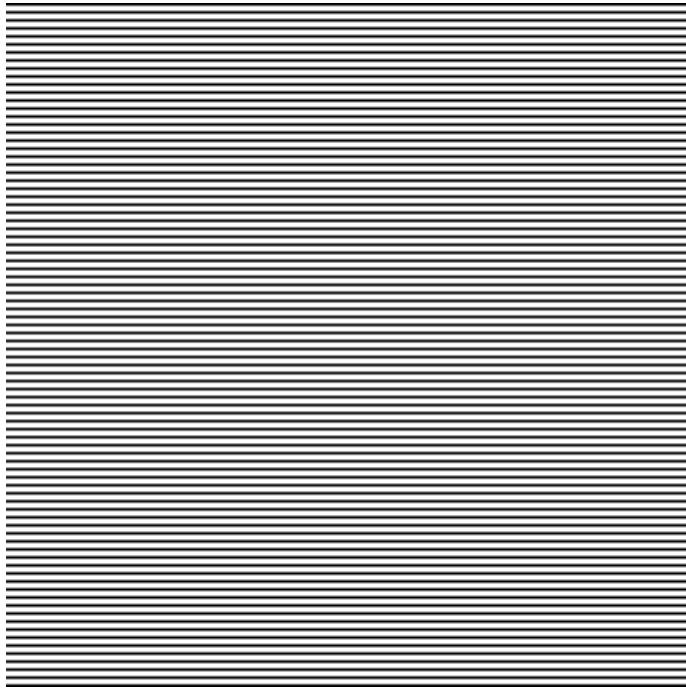
How does one establish correspondence? (UV mapping)



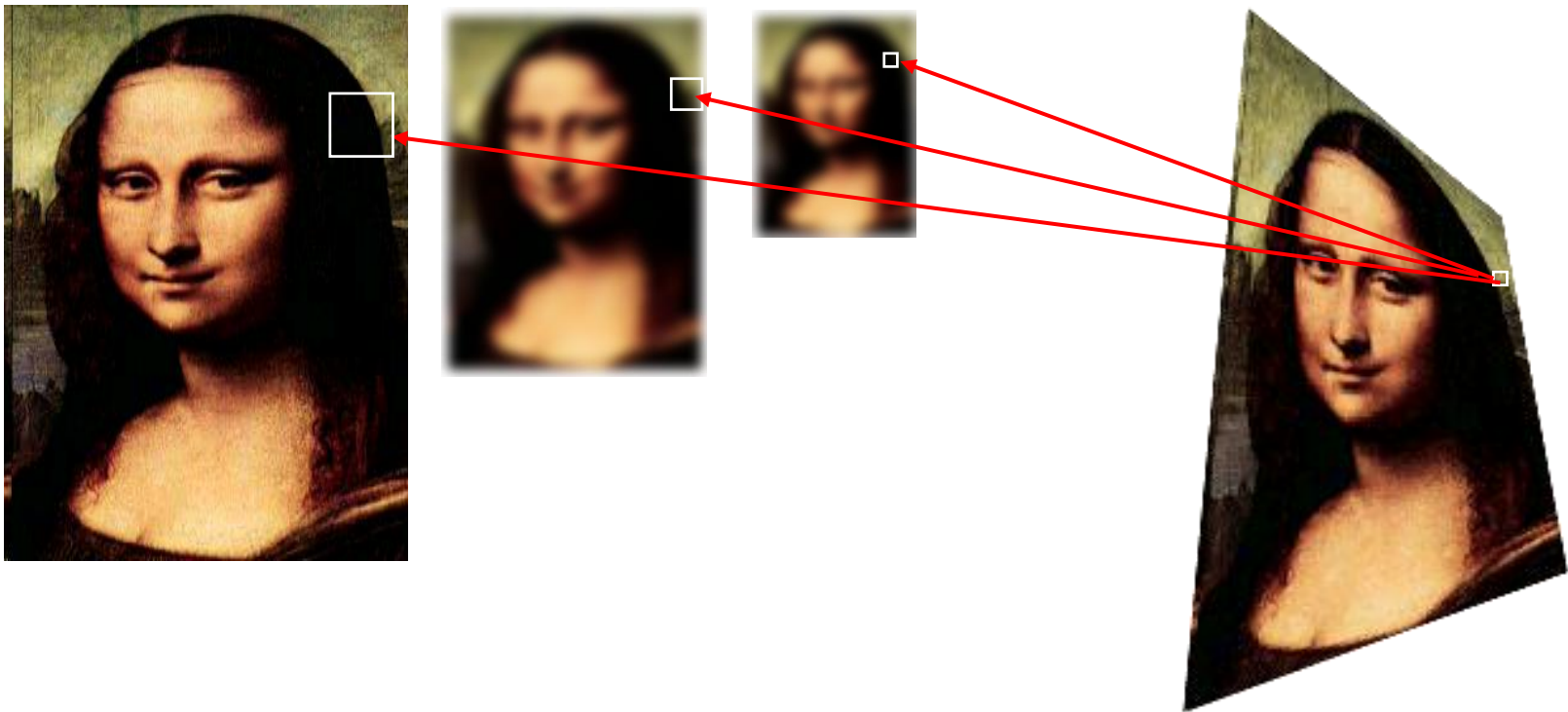
*For each triangle in the model
establish a corresponding region
in the phototexture*

*During rasterization interpolate the
coordinate indices into the texture map*

Aliasing During Texture Mapping

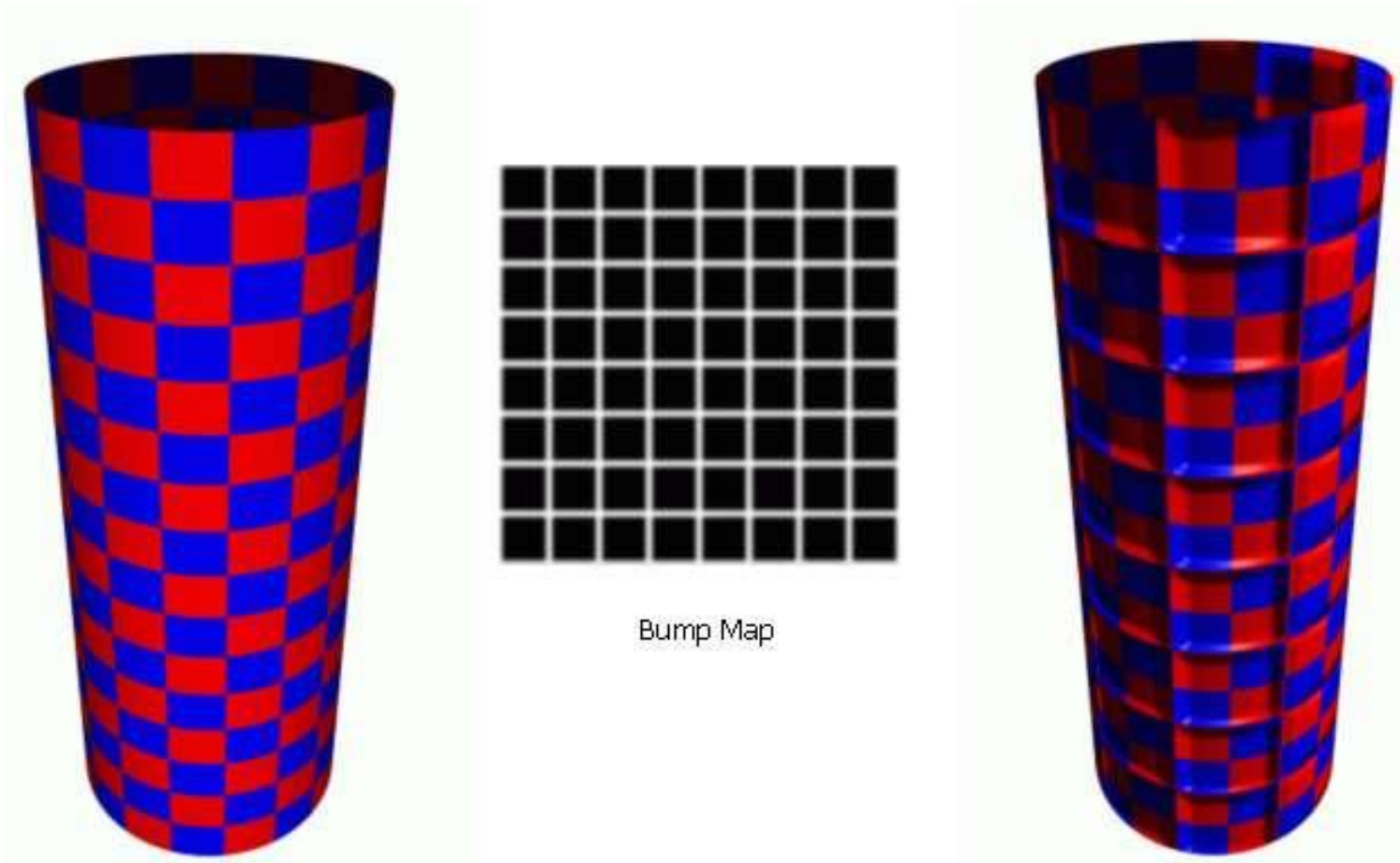


MIP-Mapping: Basic Idea

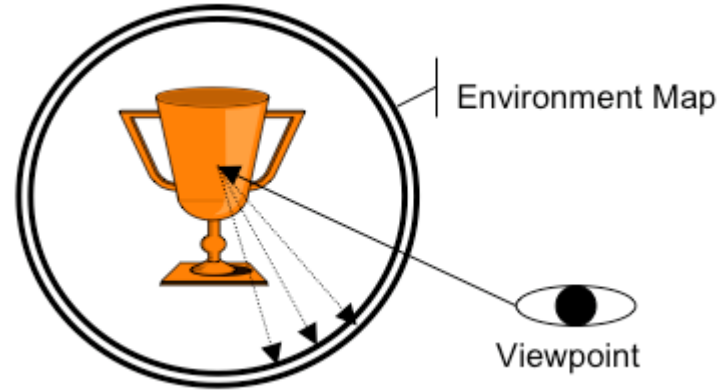


Given a polygon, use the texture image, where the projected polygon best matches the size of the polygon on screen.

Bump mapping

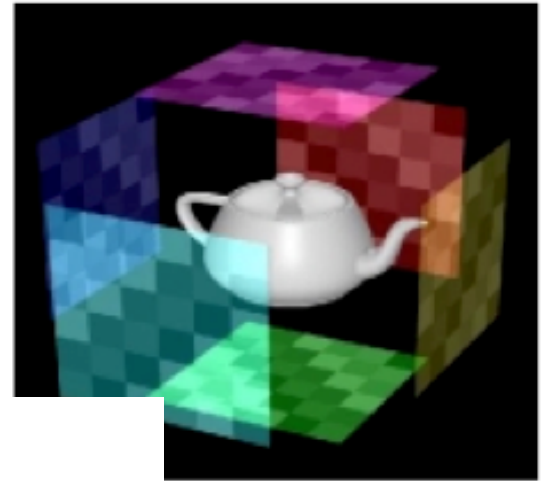
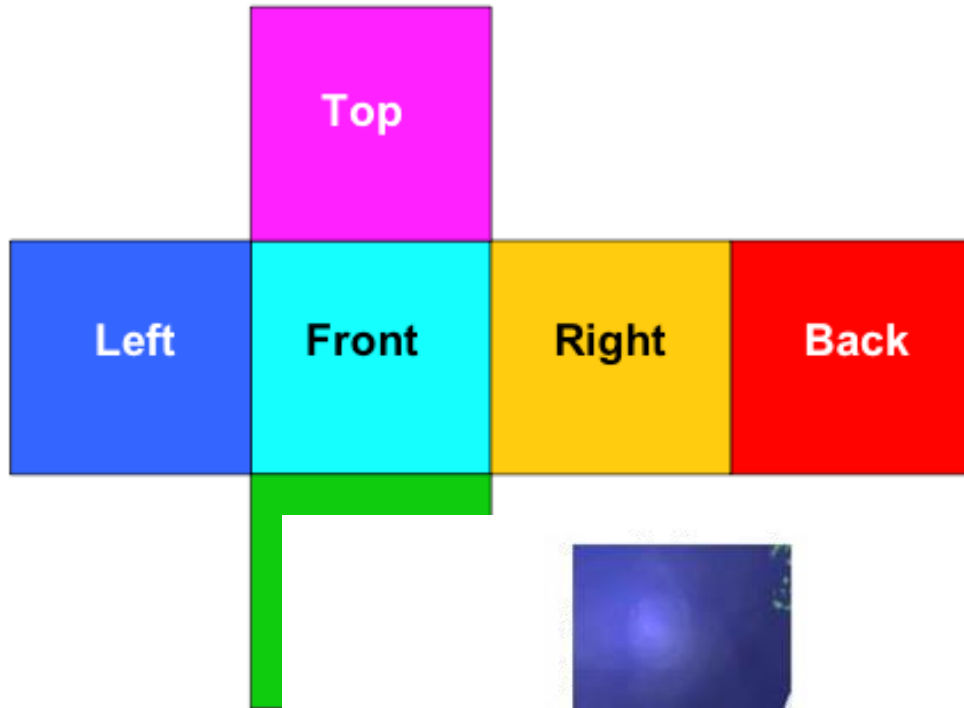


Environment Map



Render a 3D scene as viewed from a central viewpoint in all directions (as projected onto a sphere or cube).
Then use this rendered image as an environment texture...
an approximation to the appearance of highly reflective objects.

Environment Mapping Cube



Environment Mapping

