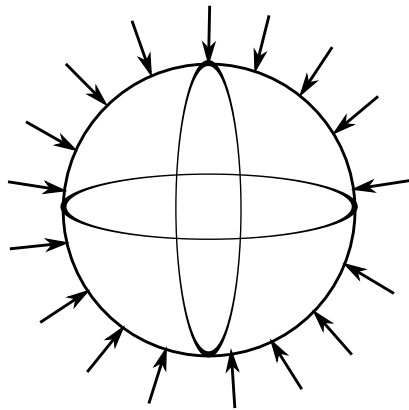


Using spherical harmonic basis functions, Basri and Jacobs* showed that 99.2% of the energy in the lambertian kernel lies in the first nine components.

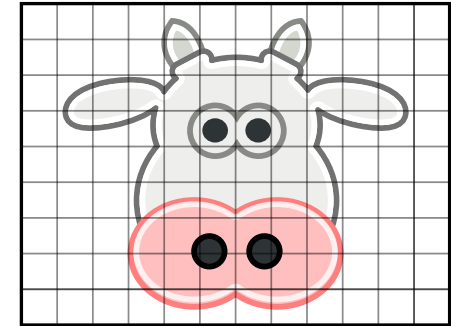
*Lambertian Reflectance and Linear Subspaces, PAMI 2003



Space of all
illuminations



Linear transformation



Space of all images.
About 9 Dimensional!

A beautiful result that helps us understand what's going on. Unfortunately...