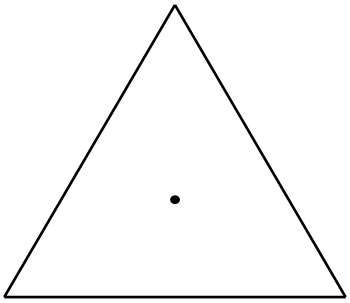
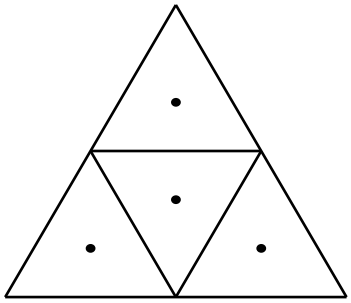
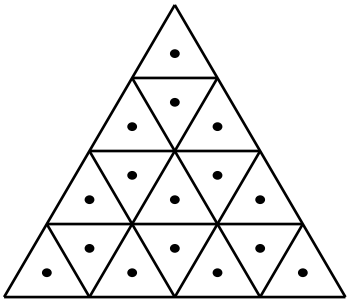
Ptex triangle textures



Level 0 = 1 texel

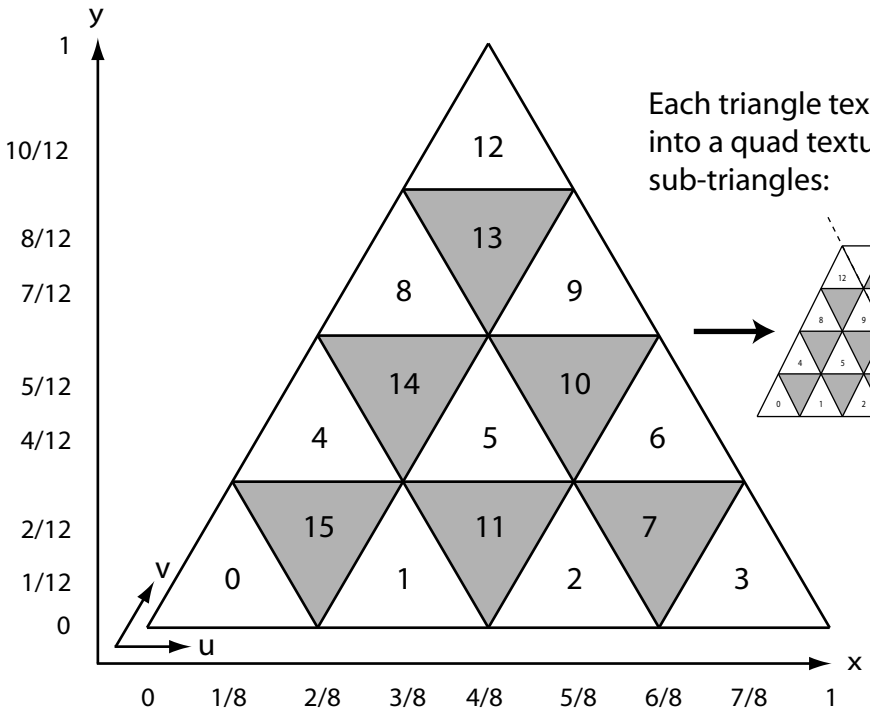


Level 1 = 4 texels

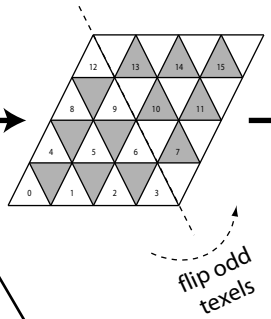


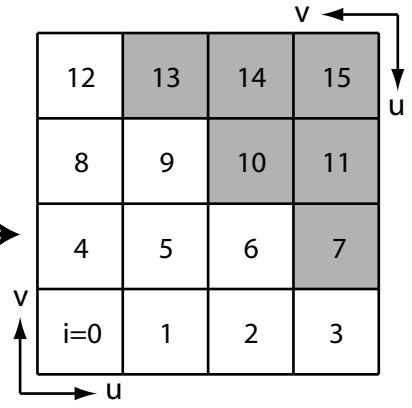
Level 2 = 16 texels

Level n = 4^n texels



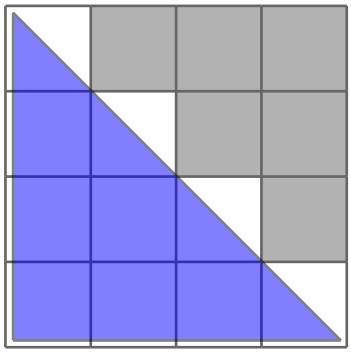
Each triangle texture is packed into a quad texture as two sub-triangles:



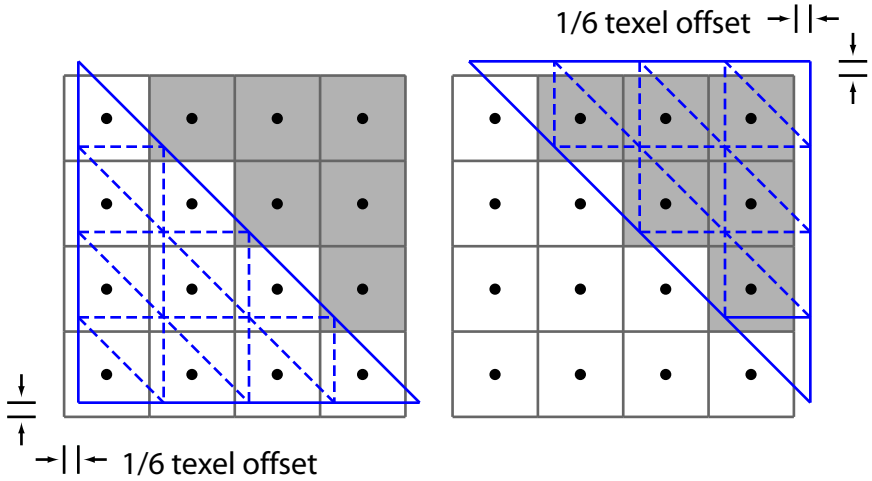


Indexing (computing i from u, v):
ut = u * res; vt = v * res;
ui = floor(ut); vi = floor(vt);
uf = ut-ui; vf = vt-vi;
if uf + vf <= 1: i = ui + vi * res
else: i = (res^2-1) - (vi + ui * res).

Rectilinear coordinate projection (for separable filtering):
x = u + v/2; y = v.



For GL display, the triangle can be rendered directly from the lower half-texture. A small epsilon should be used to keep the triangle inside the texture.



For paint projection (i.e. rasterizing triangles into the quad texture), two triangle projections are needed to cover the quad. A 1/6 texel offset is also required to align the triangle sample points with the quad texel centers.