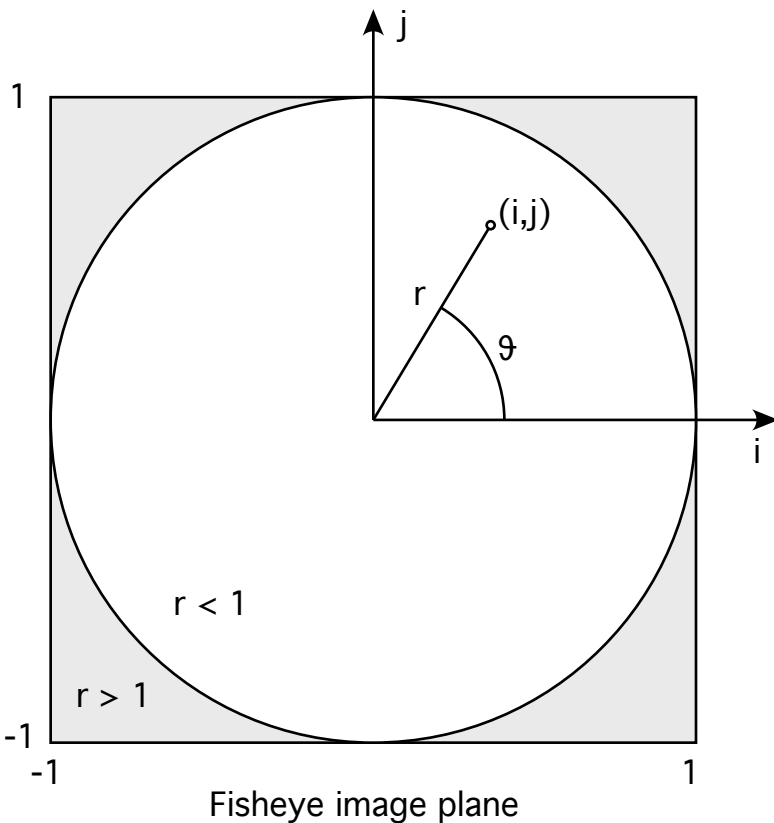


World to screen coordinates.

```

theta = atan2(p.z,p.x)
phi = atan2(sqrt(p.x*p.x+p.z*p.z),p.y)
r = 2 * phi / pi
i = r * cos(theta)
j = r * sin(theta)

```



Screen to vector into world.

```

r = sqrt(i^2 + j^2) // 0 ... 1
theta = atan2(j,i) // -pi ... pi
phi = r * pi / 2 // 0 ... pi/2
p.x = sin(phi) * cos(theta)
p.y = cos(phi)
p.z = sin(phi) * sin(theta)

```