

Early Visual Processing in the Brain

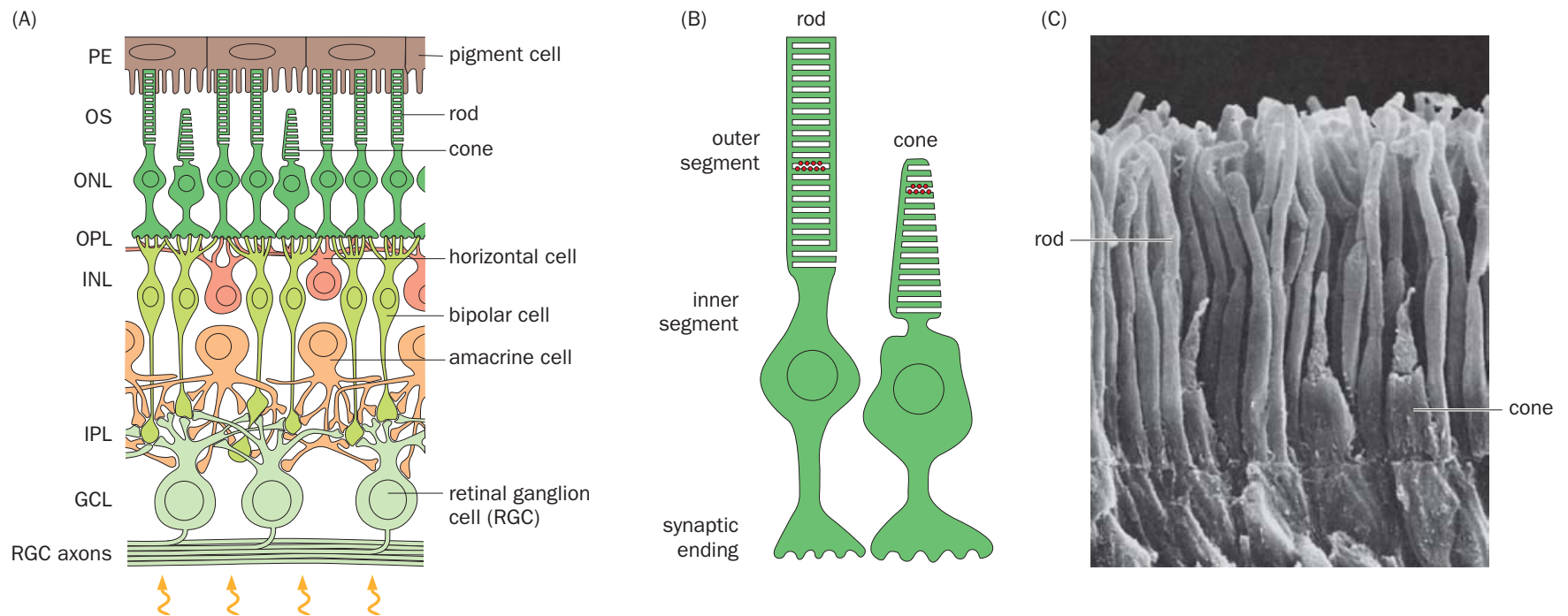
To capture an image in starlight



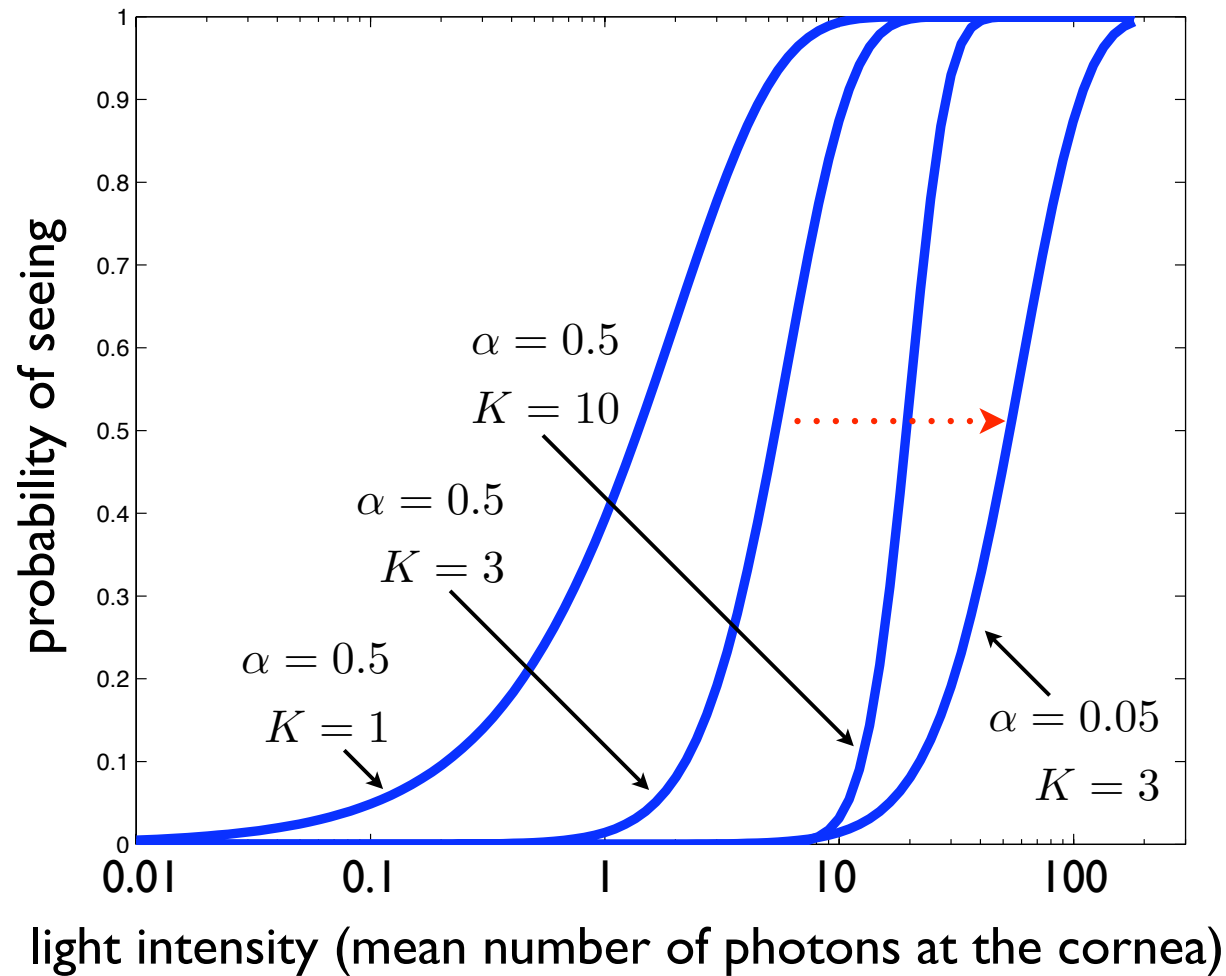
To capture an image in starlight



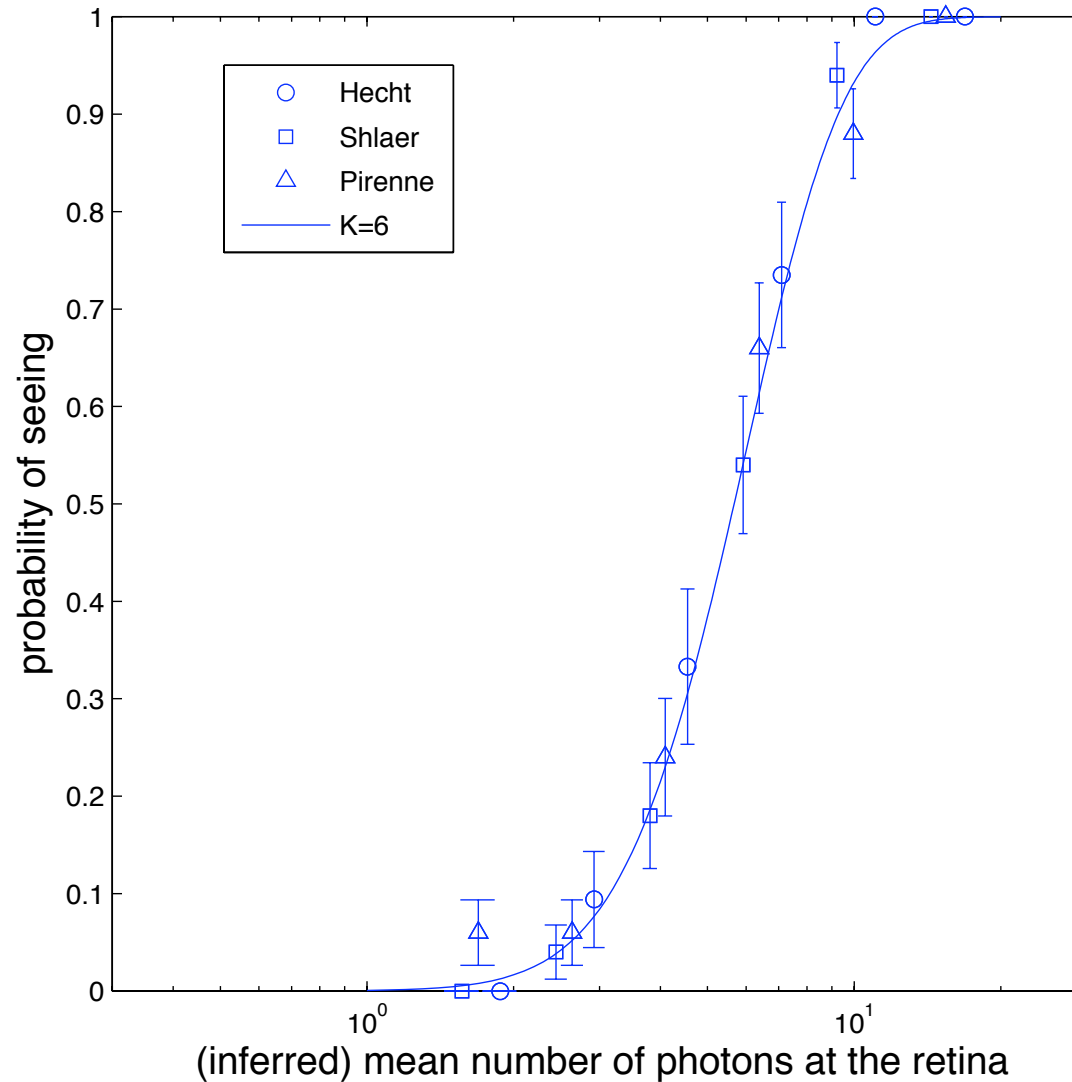
To capture an image in starlight



Can we detect single photon?



Can we detect single photon?



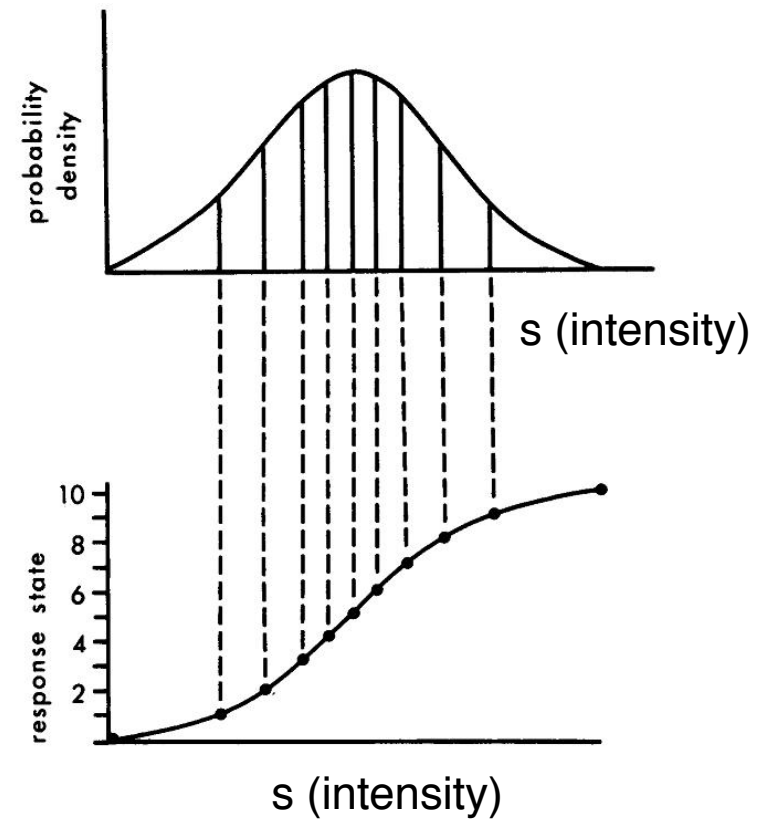
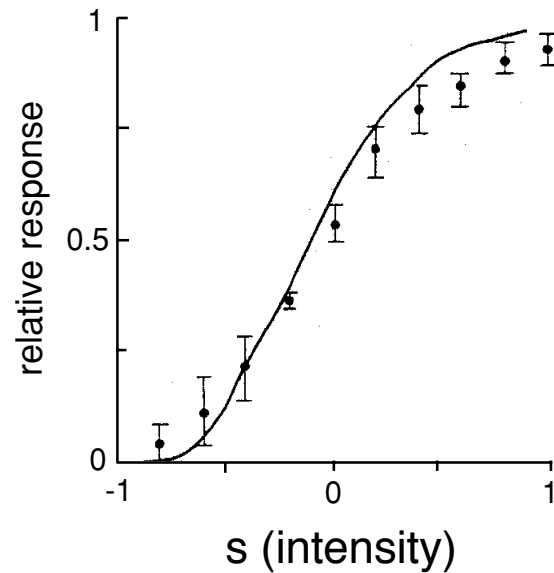
Information and Entropy

The game of sixty three

- $x \geq 32$?
- is $x \bmod 32 \geq 16$?
- is $x \bmod 16 \geq 8$?
- is $x \bmod 8 \geq 4$?
- is $x \bmod 4 \geq 2$?
- is $x \bmod 2 \geq 1$?

$$I = -\log_2 p$$

Maximizing entropy principle



$$r = f(s)$$

$$H = - \int_0^{r_{max}} dr p(r) \ln p(r)$$

$$\frac{df}{ds} = r_{max} p(s)$$

$$p(r) = \frac{1}{r_{max}}$$