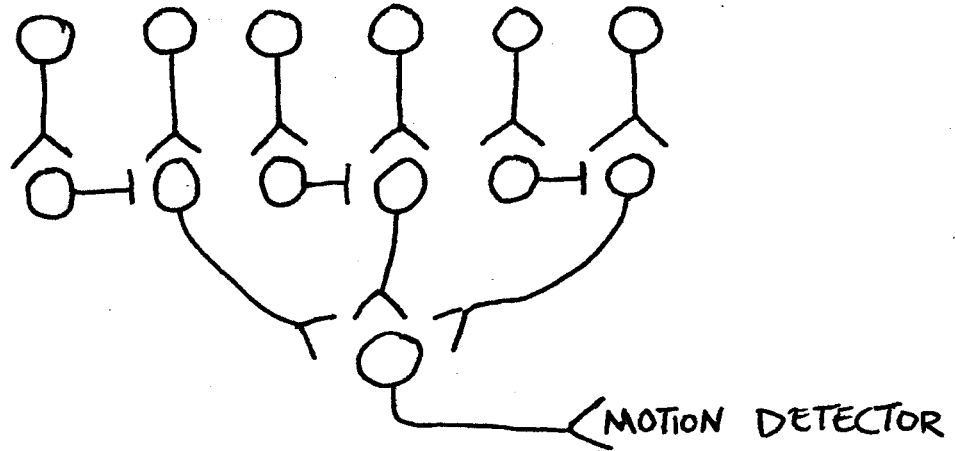


CS17 Neurobiology of Cognition  
Supplement to Vision Lecture

|                    | <u>RODS</u>                               | <u>CONES</u>   |
|--------------------|---|--|
| Shape              | Outer Segment rod-like                    | Outer Segment cone-like                                |
| Size               | Larger (more photopigment)                | Smaller (less photopigment)                            |
| #                  | ~ 120 million/eye                         | ~ 6 million/eye  |
| Distribution       | None in Fovea, highly conc'd in periphery | High concentration in Fovea, dispersed in periphery    |
| Re: Ganglion Cells | High Convergence                          | Low Convergence  |
| Potential          | Graded potentials                         | Graded potentials                                      |
| NT                 | Spontaneously release Inhibitory NT       | Spontaneously release Inhibitory NT                    |
| Photopigment       | 1 kind (Rhodopsin)                        | 3 kinds (sensitive to Long, Medium, Short $\lambda$ s) |
| Code Color         | No (dark/light only)                      | Yes (Long, Medium, Short $\lambda$ s)                  |
| Motion Detection   | Excellent                                 | Poor   |
| Acuity             | Low                                       | High (esp in Fovea)                                    |
| Sensitivity        | High (can operate in dim light)           | Not as good (require brighter light)                   |
| Pathway            | Magnocellular/Dorsal Stream               | Mostly Parvocellular/Ventral Stream                    |

Schematic of circuit for Direction- Sensitive Cells

The "Motion Detector" cell at the bottom of this schematic would respond to motion from right to left, but NOT from left to right



Schematic of circuit for Simultaneous Contrast

