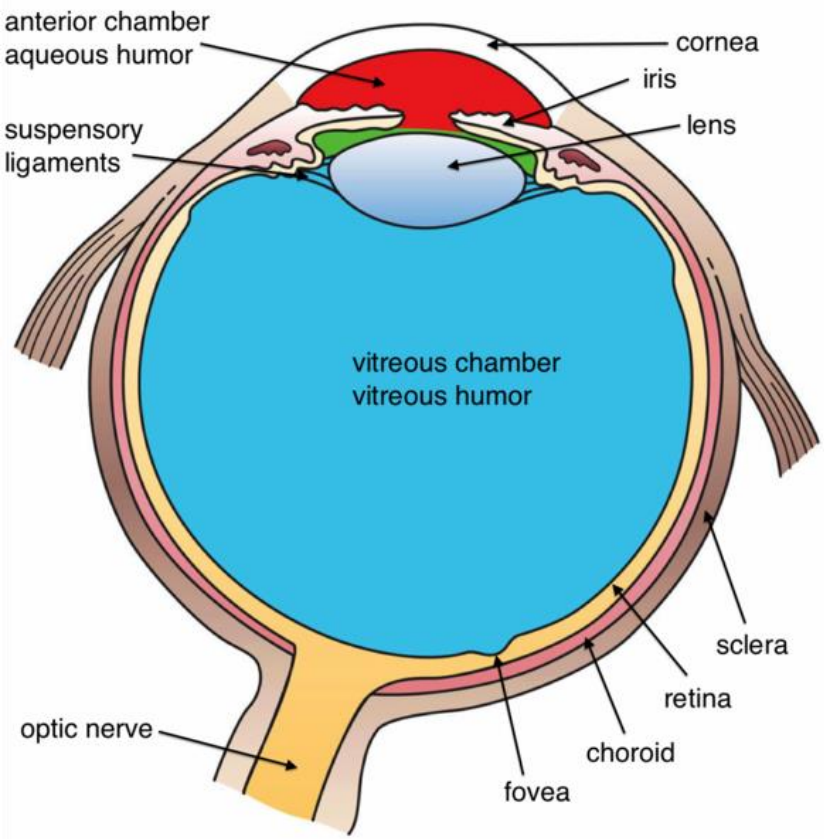


Abbildung 1 Anatomy of the eye

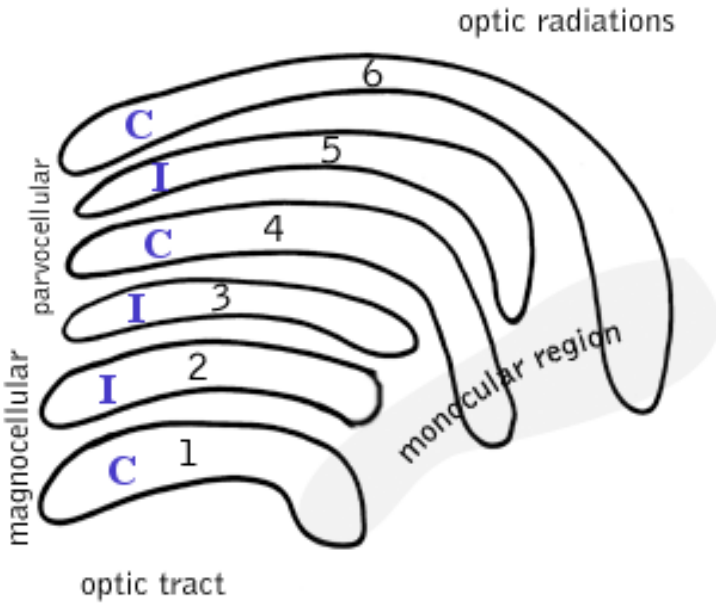


Abbildung 2 Lateral geniculate nucleus

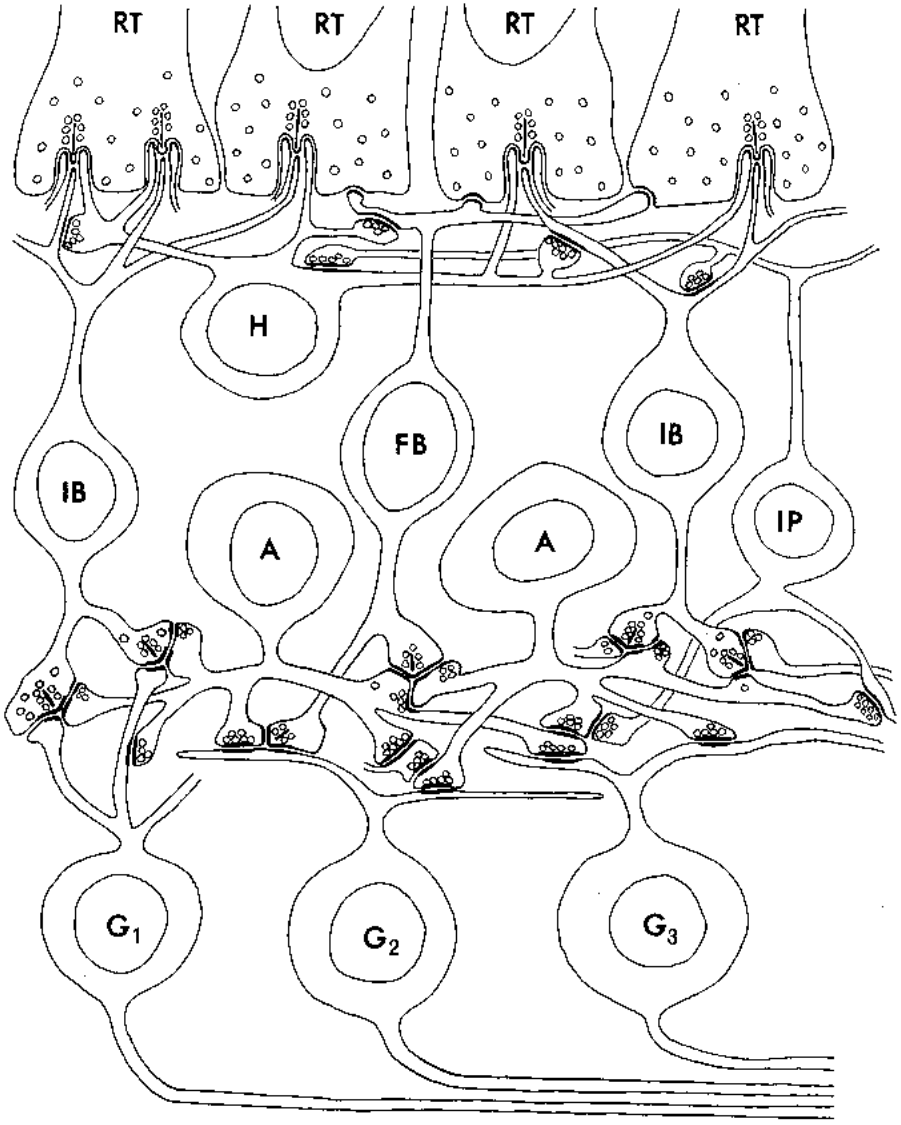


Abbildung 3 Basic retinal circuitry. Bottom lines: Optic nerve, G: Ganglion cells, A: Amacrine cells, B: Bipolar cells, H: Horizontal cells, RT: Receptor terminals. Light comes from bottom to top, but order of processing is from top to bottom

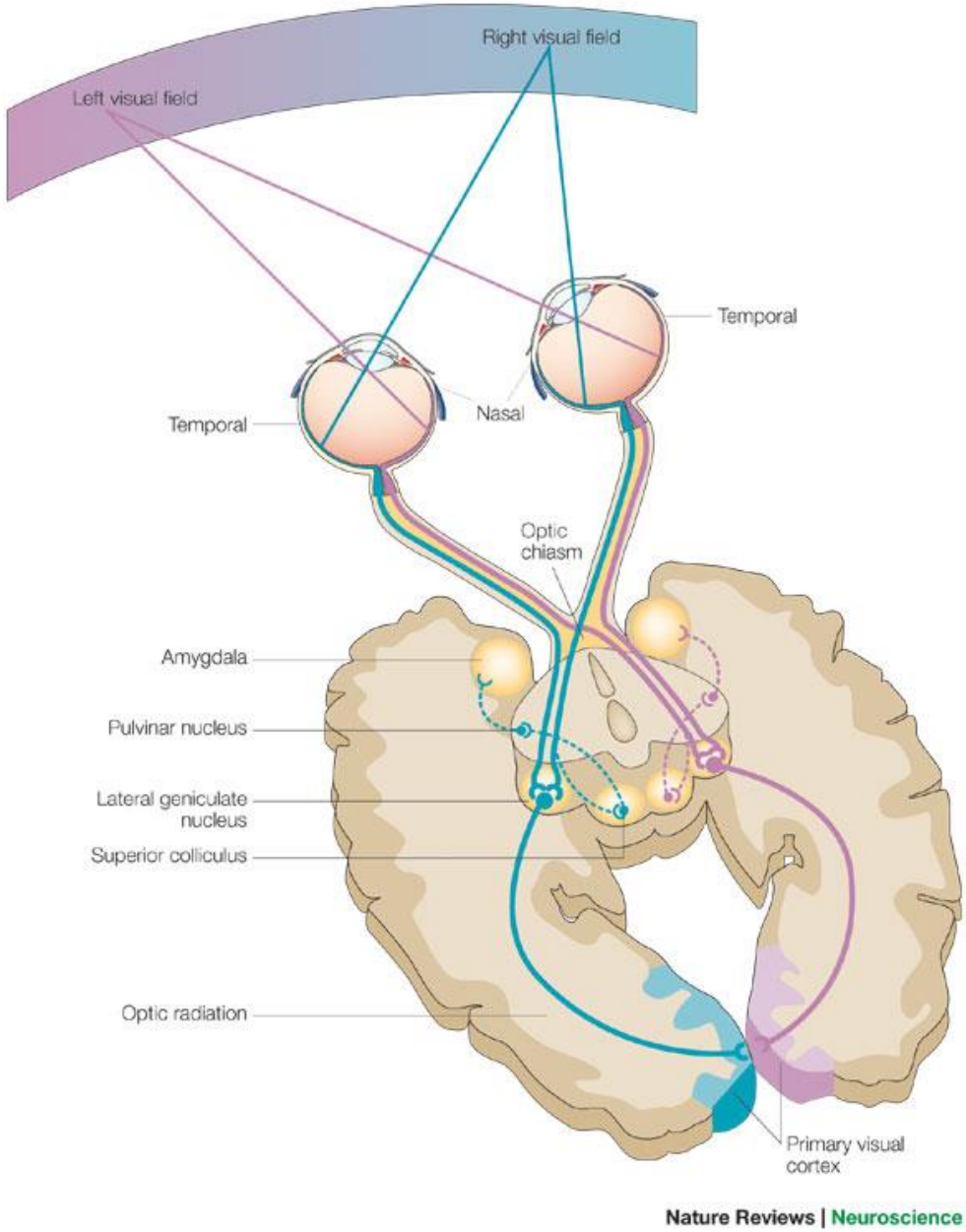


Abbildung 4 Visual pathways

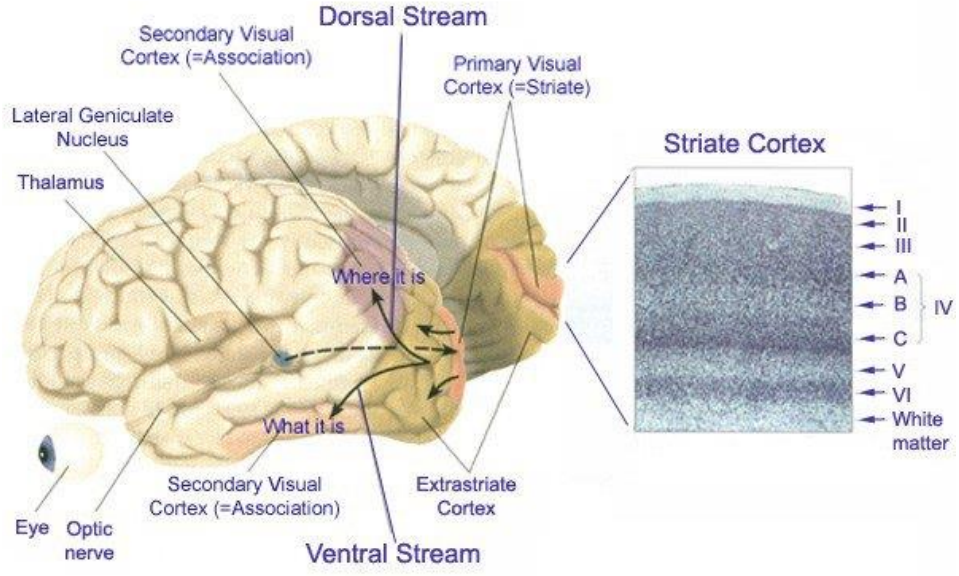


Abbildung 5 Visual cortex and structure of striate cortex

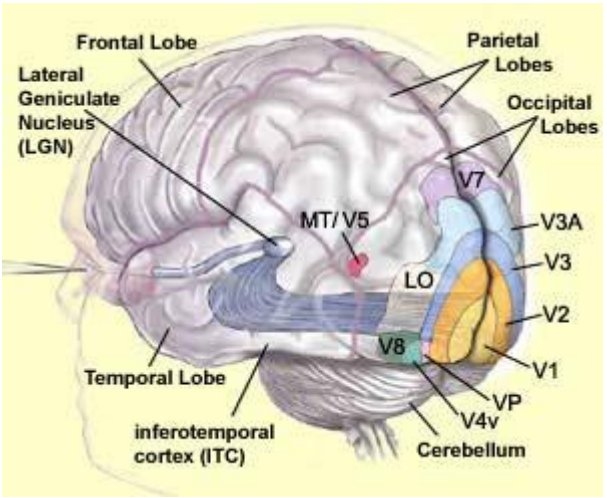


Abbildung 7 Human extrastriate cortex. V1: Primary visual cortex: receives all visual input. Begins processing of color, motion and shape. Cells in this area have the smallest receptive fields. V2, V3 and VP: Continue processing: cells of each area have progressively larger RF. MT/V5: Detects motion. V8: Processes color vision.

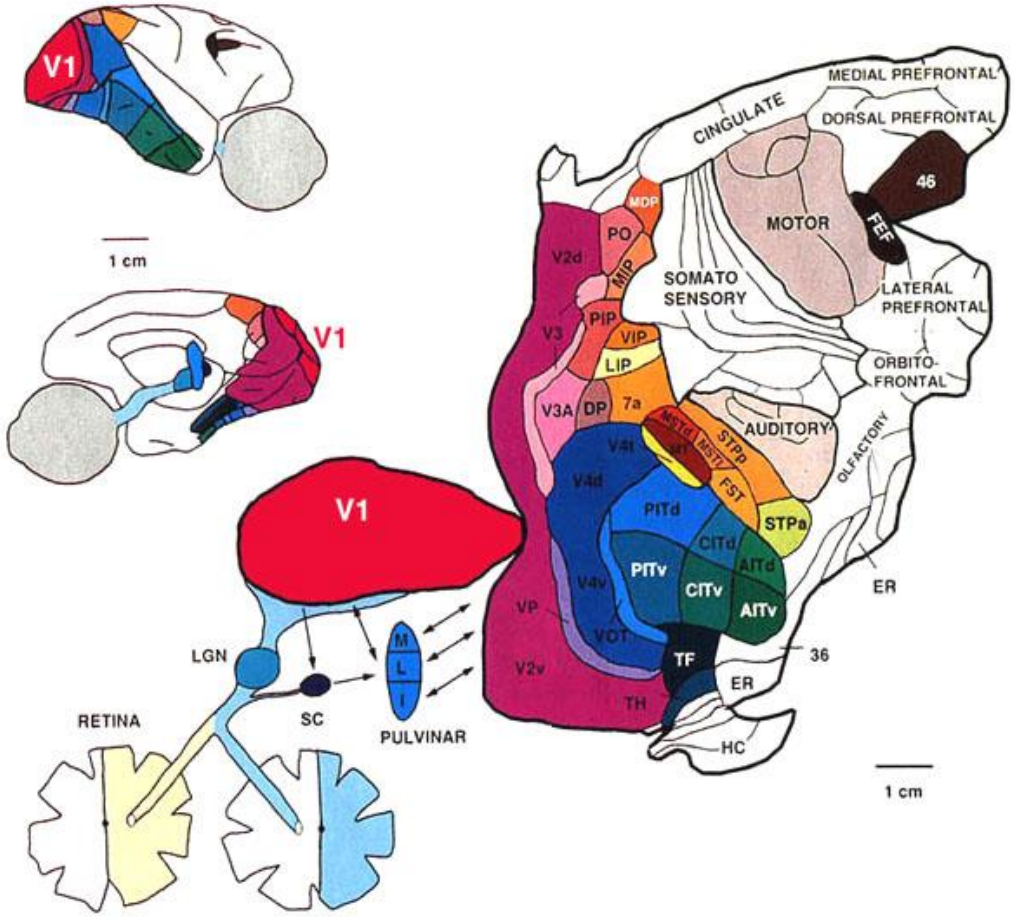
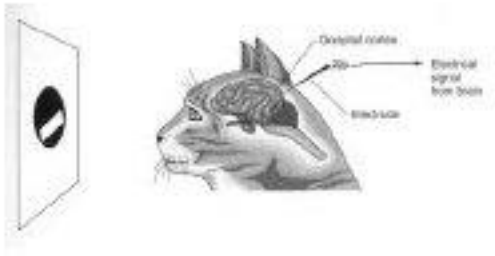
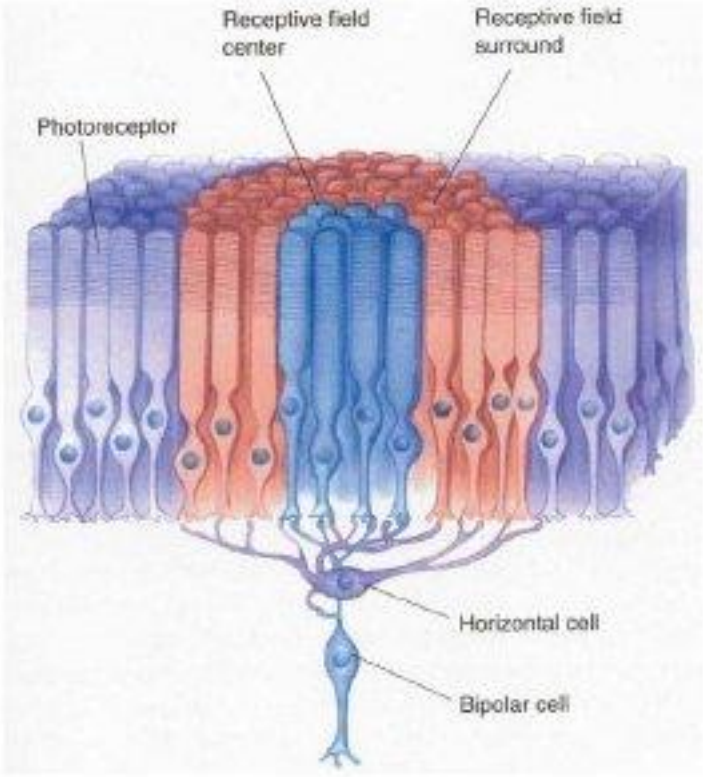


Figure 19. Much of V1 is located in the calcarine sulci and its relationship to other brain areas is best shown by unfolding the brain and showing it flattened open. The visually responsive areas of the macaque monkey are shown in color. From Van Essen et al. (1992).

Abbildung 6 Macaque extrastriate cortex





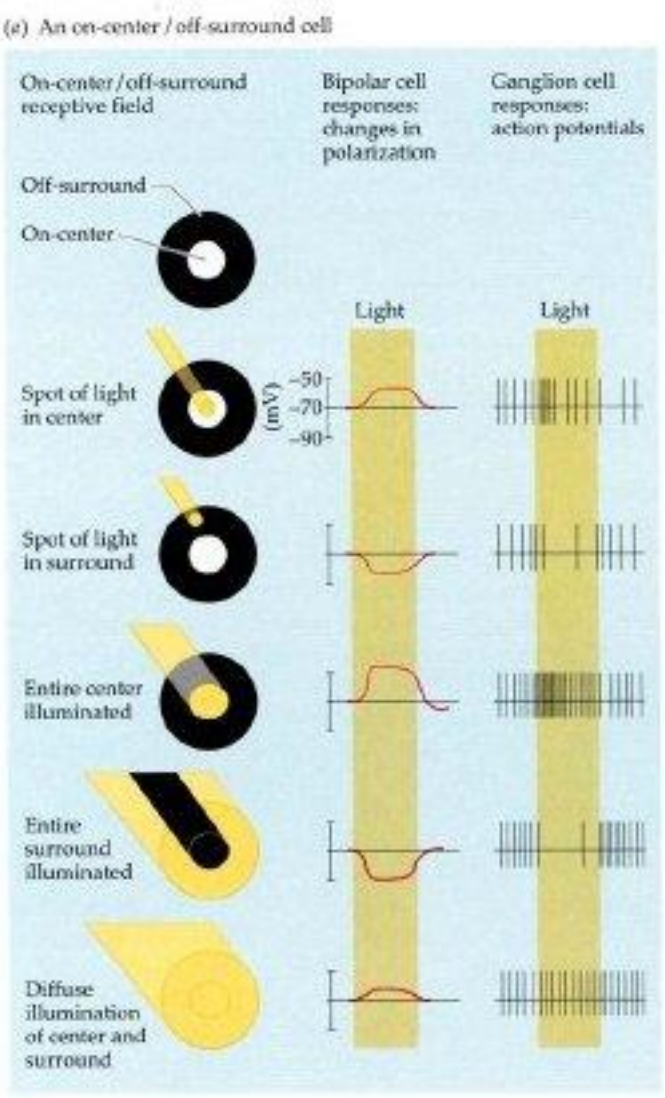


Abbildung 8 Lateral inhibition

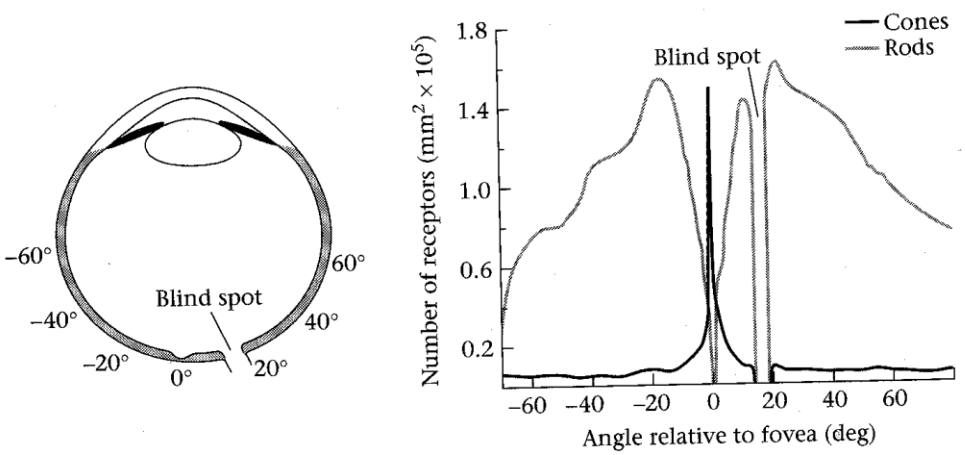


Abbildung 9 Distribution of rods and cones

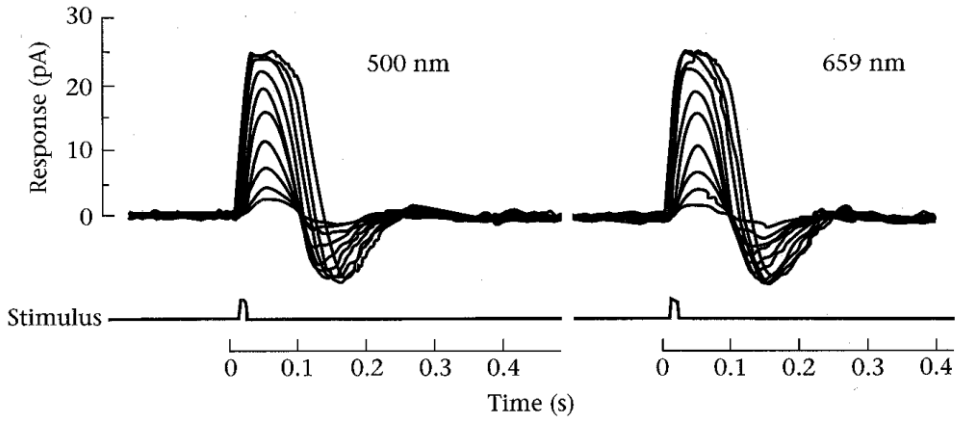


Abbildung 10 Principle of univariance

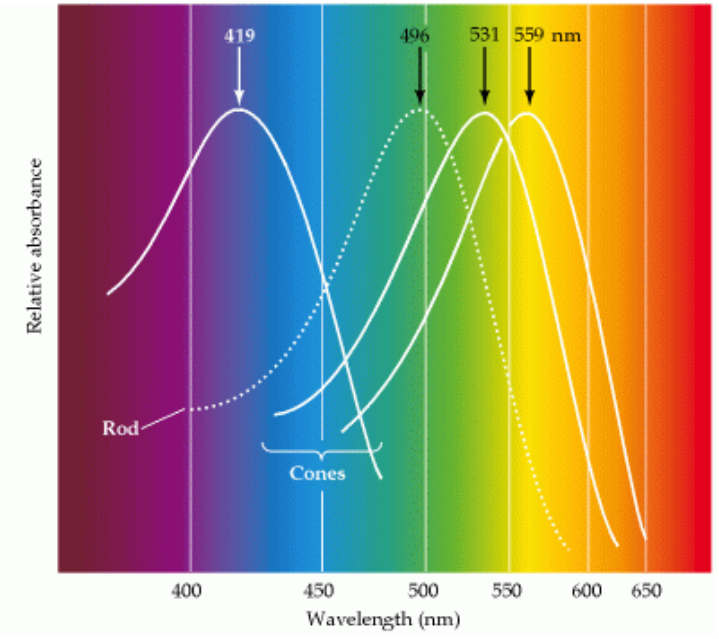


Abbildung 11 Wavelength sensitivity (normalized)

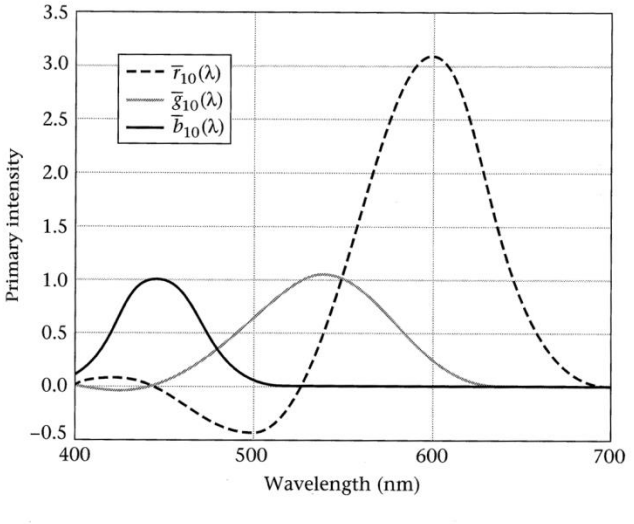


Abbildung 12 Absolute wavelength sensitivity

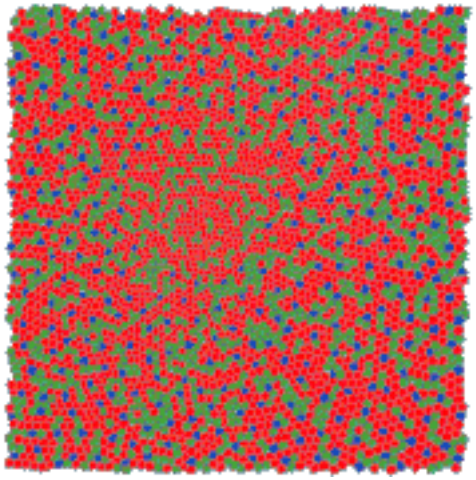


Abbildung 13 Cone mosaic

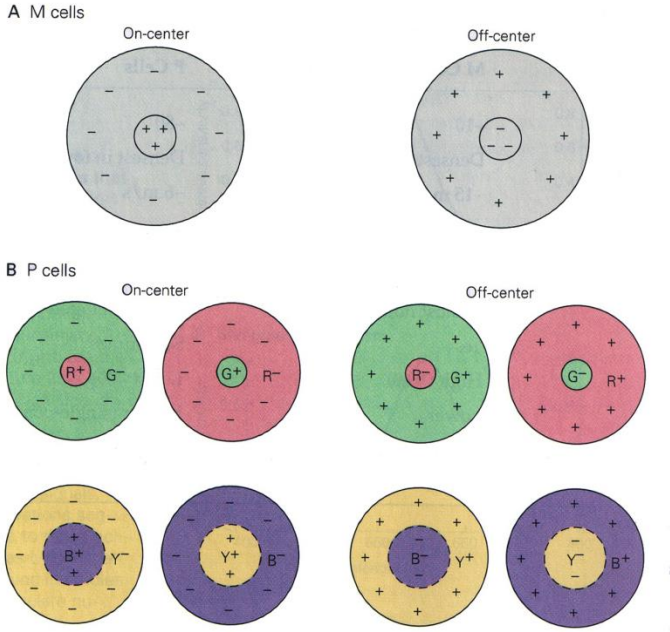


Abbildung 14 Receptive fields of LGN cells

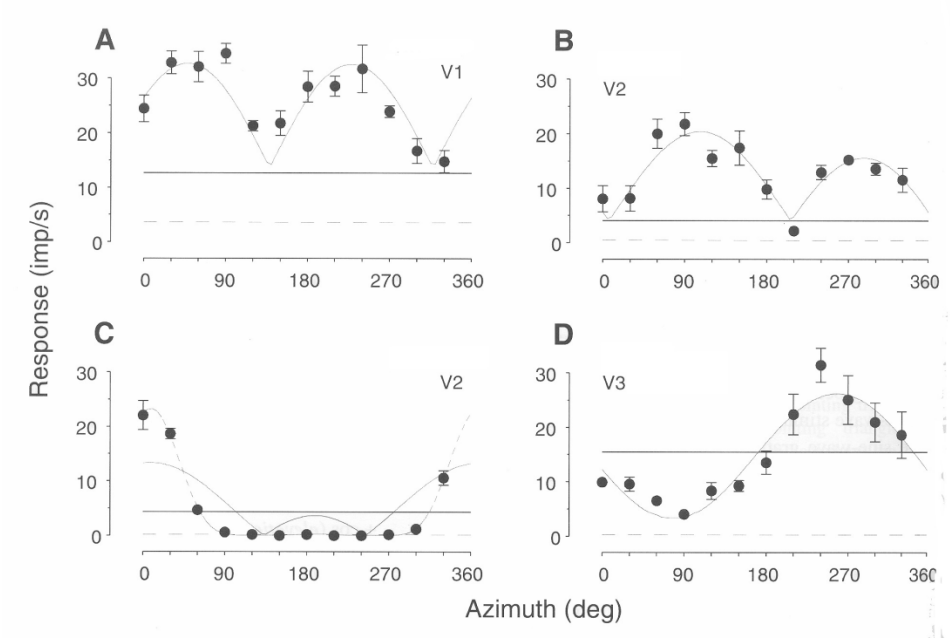


Abbildung 15 Cells' response to color variations. A, B, D look like responses from LGN cells.

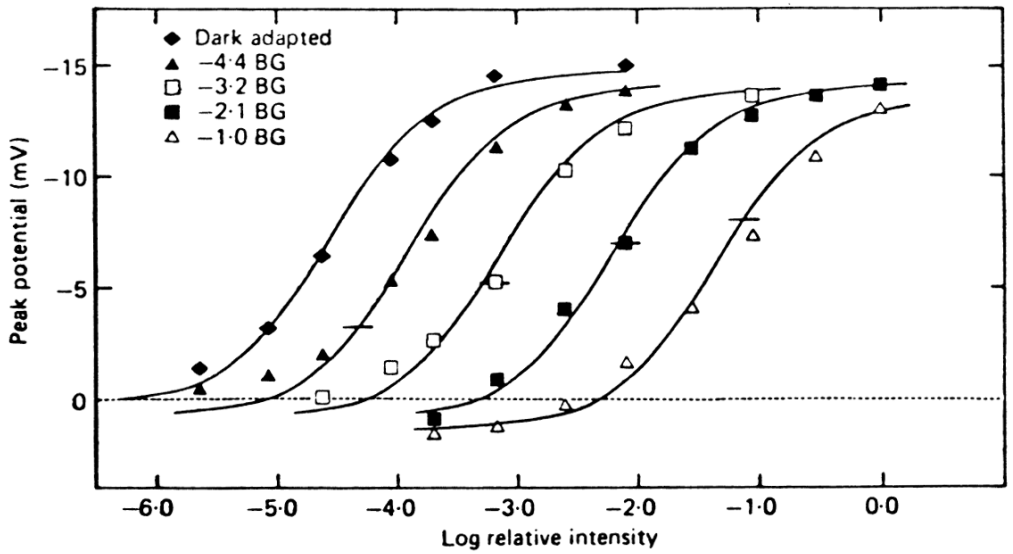


Abbildung 16 Adaptation to dark background

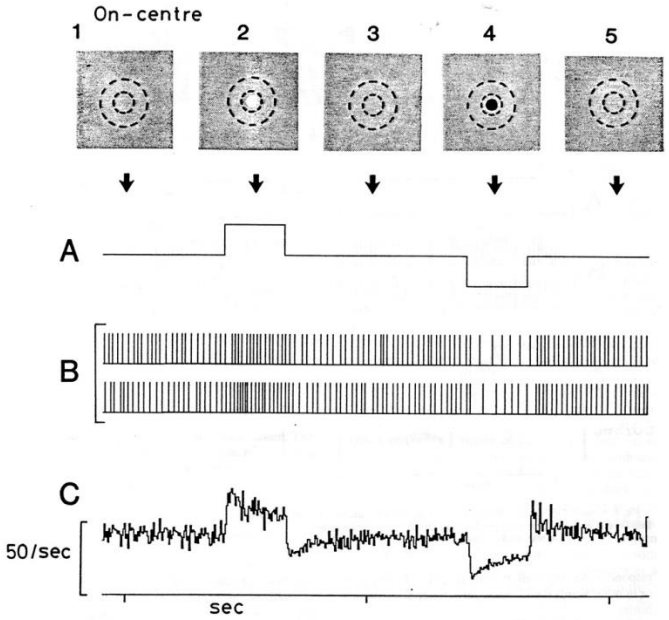


Abbildung 17 Responses of an On-Center-Cell. A: Stimulus, B: Spike trains of repeated experiments, C: Firing frequency

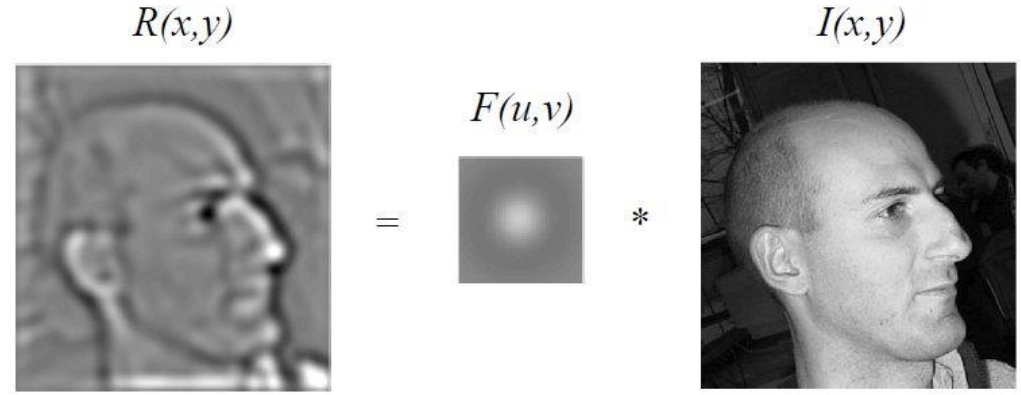


Abbildung 19 Gaussian filter

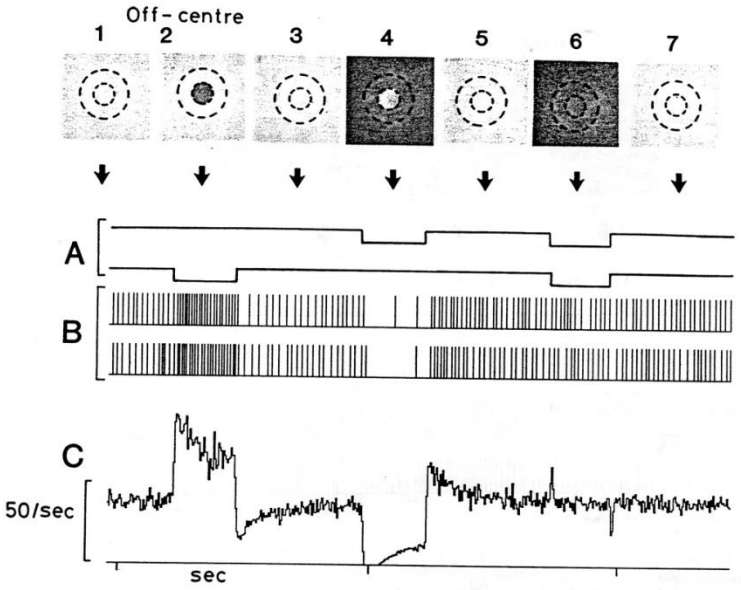


Abbildung 18 Responses of an Off-Center-Cell. A: Stimuli of surround (top) and center (bottom), B: Spike trains of repeated experiments, C: Firing frequency

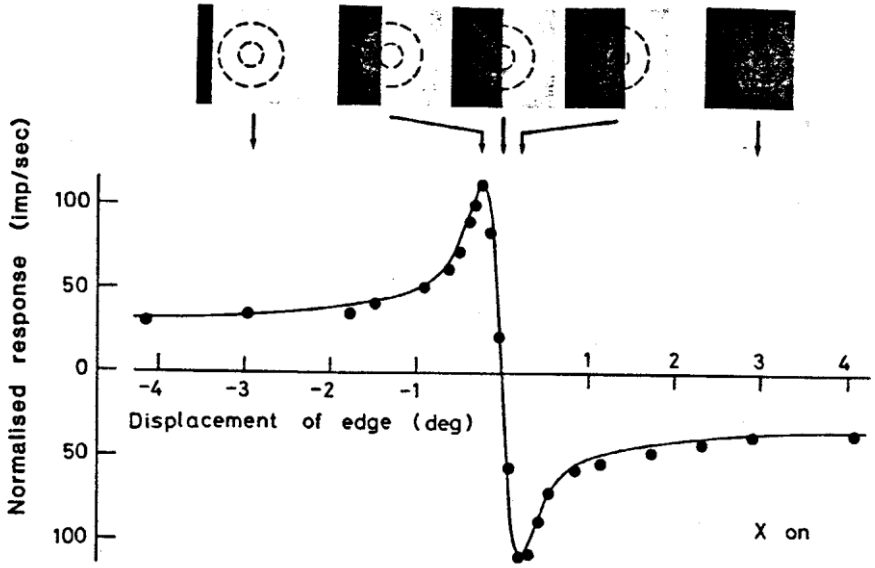


Abbildung 20 Reponse of a ON ganglion cell to edge. The ON-center dominates the OFF-surround.

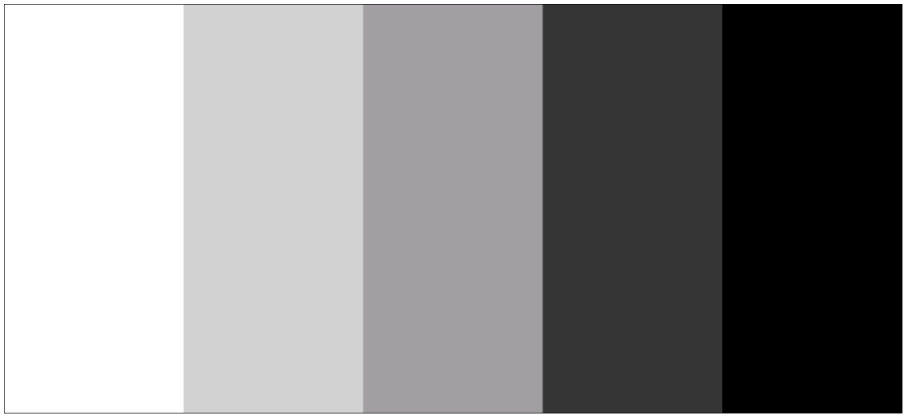


Abbildung 21 Mach bands

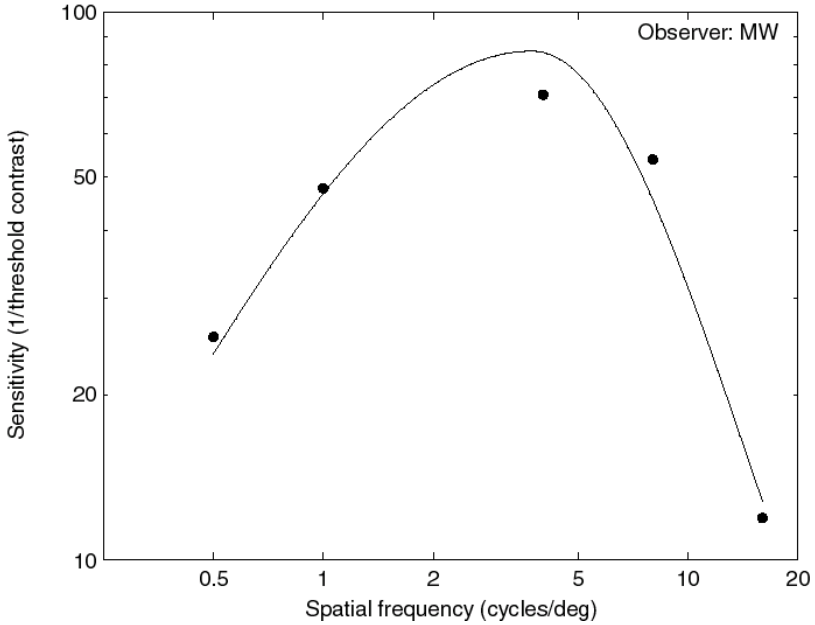


Abbildung 22 Spatial frequency sensitivity curve

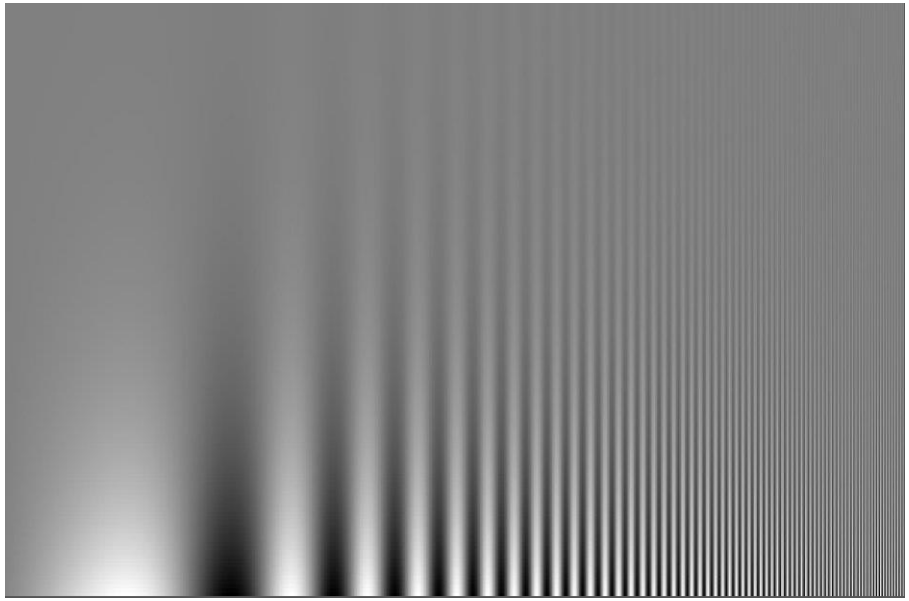


Abbildung 23 Spatial frequency sensitivity exmaple

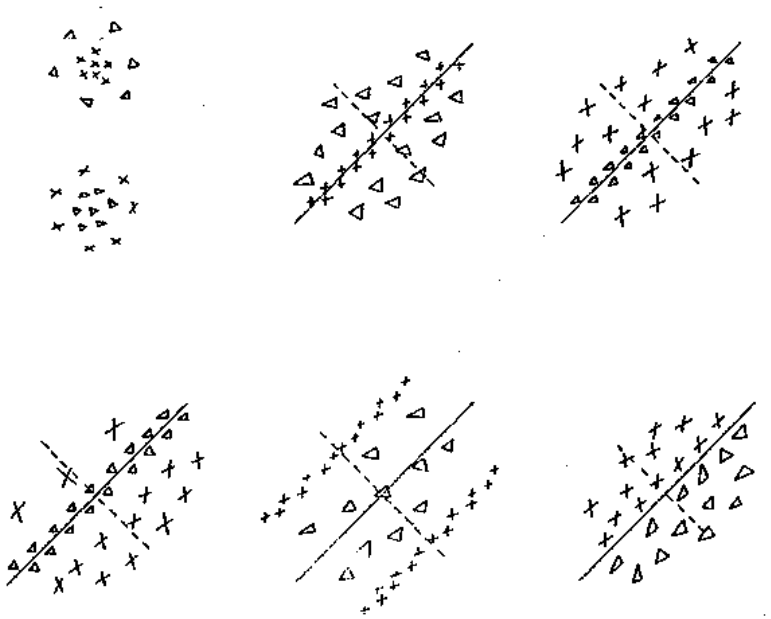


Abbildung 24 Receptive fields of LGN (top left) and V1 simple cells (other)

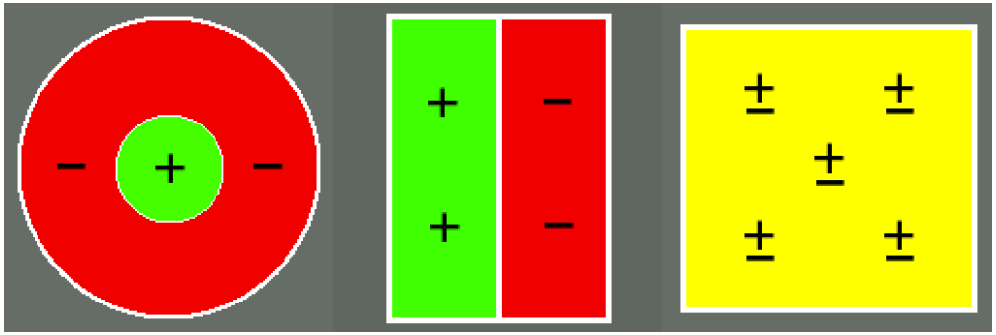


Abbildung 25 Receptive fields of LGN cell, simple cell, complex cell

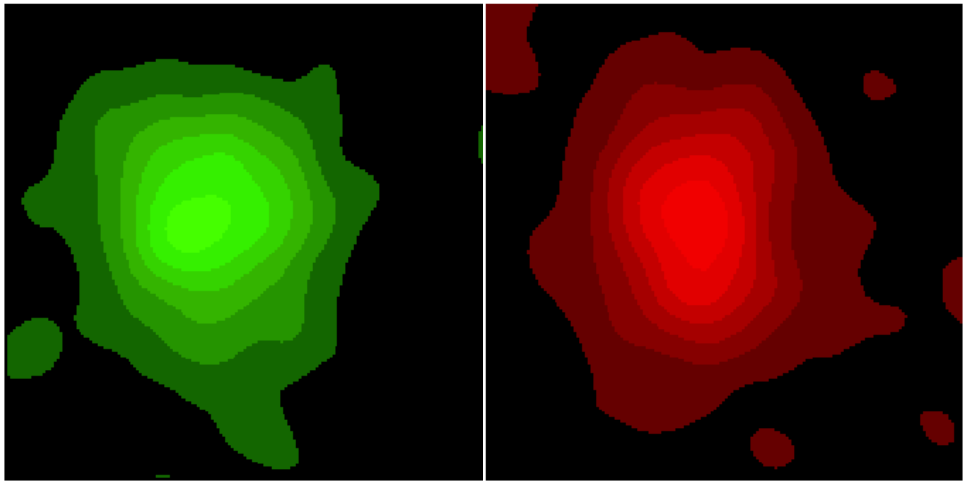


Abbildung 26 Response of a complex cell to white dots and black dots stimuli

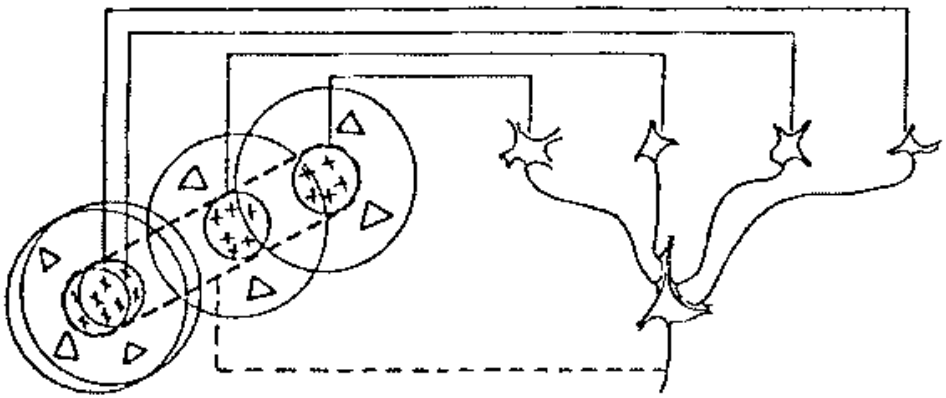


Abbildung 27 Feed forward model of simple cells.

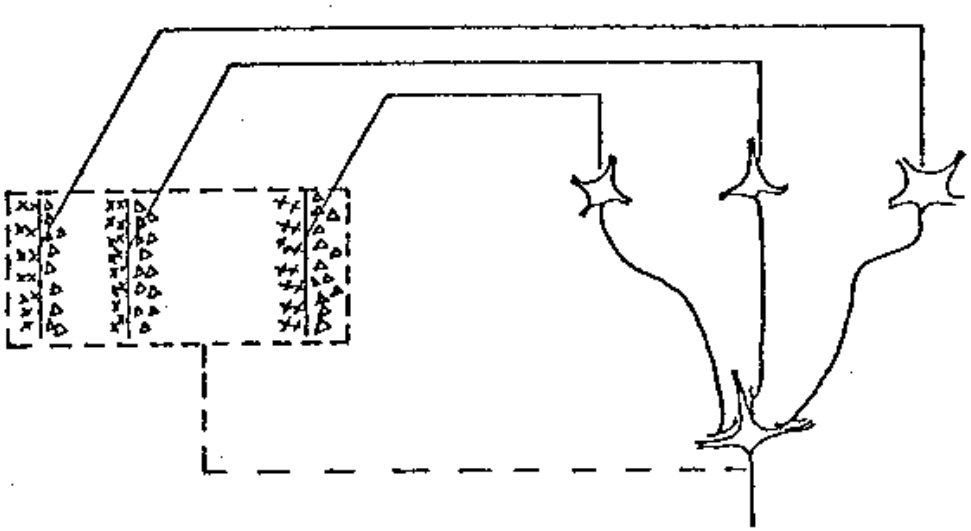


Abbildung 28 Feed forward model of complex cells. It doesnt't work

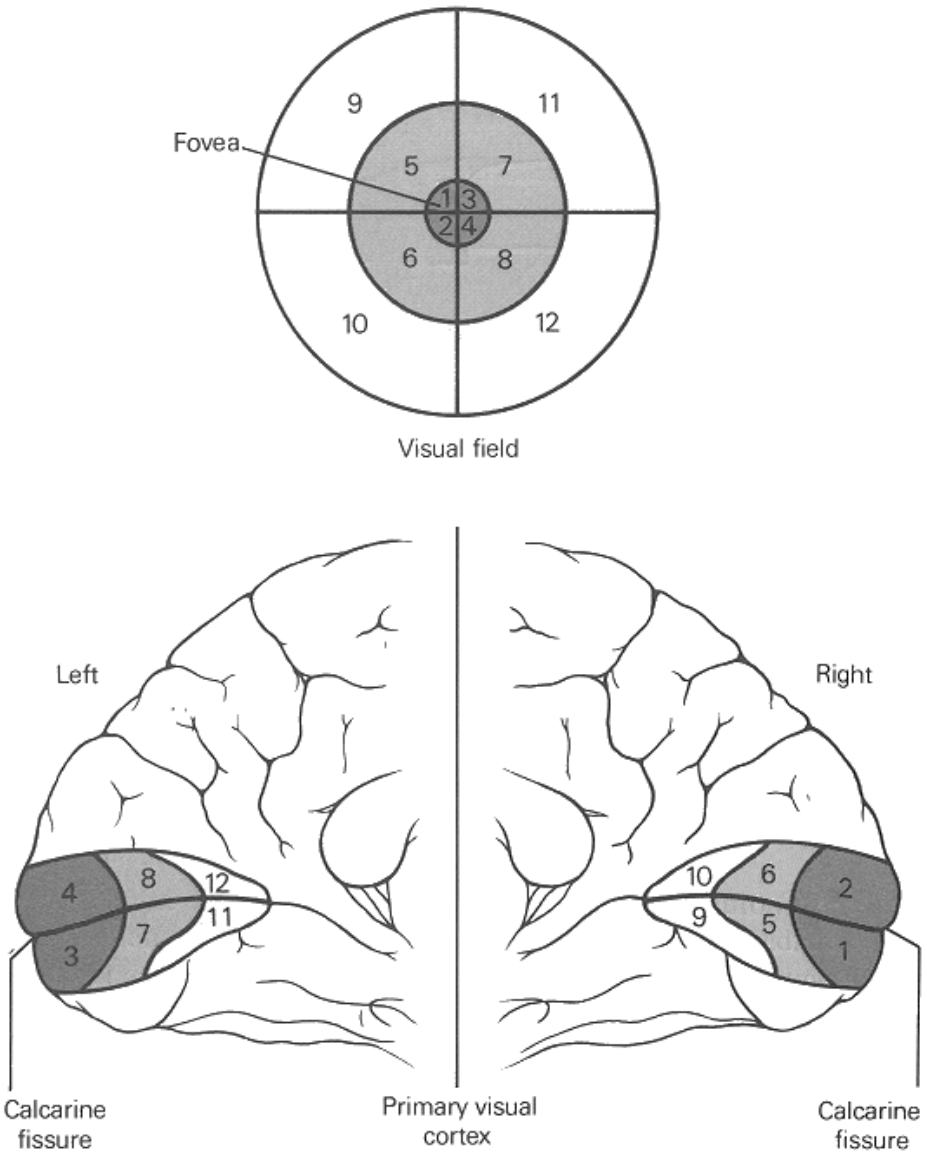


Abbildung 29 Retinotopic map of monkey V1, http://fourier.eng.hmc.edu/e180/lectures/v1/node3.html

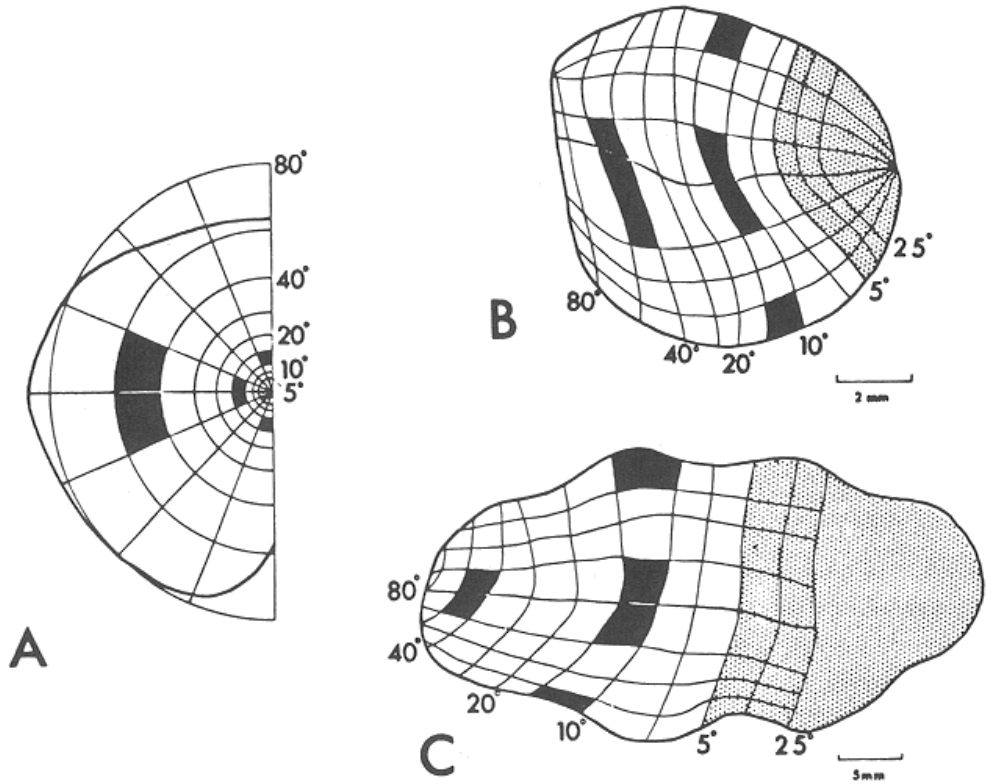


Abbildung 30 Retinotopic map in monkey of A: Visual field, B: LGN, C: V1, http://fourier.eng.hmc.edu/e180/lectures/v1/node3.html

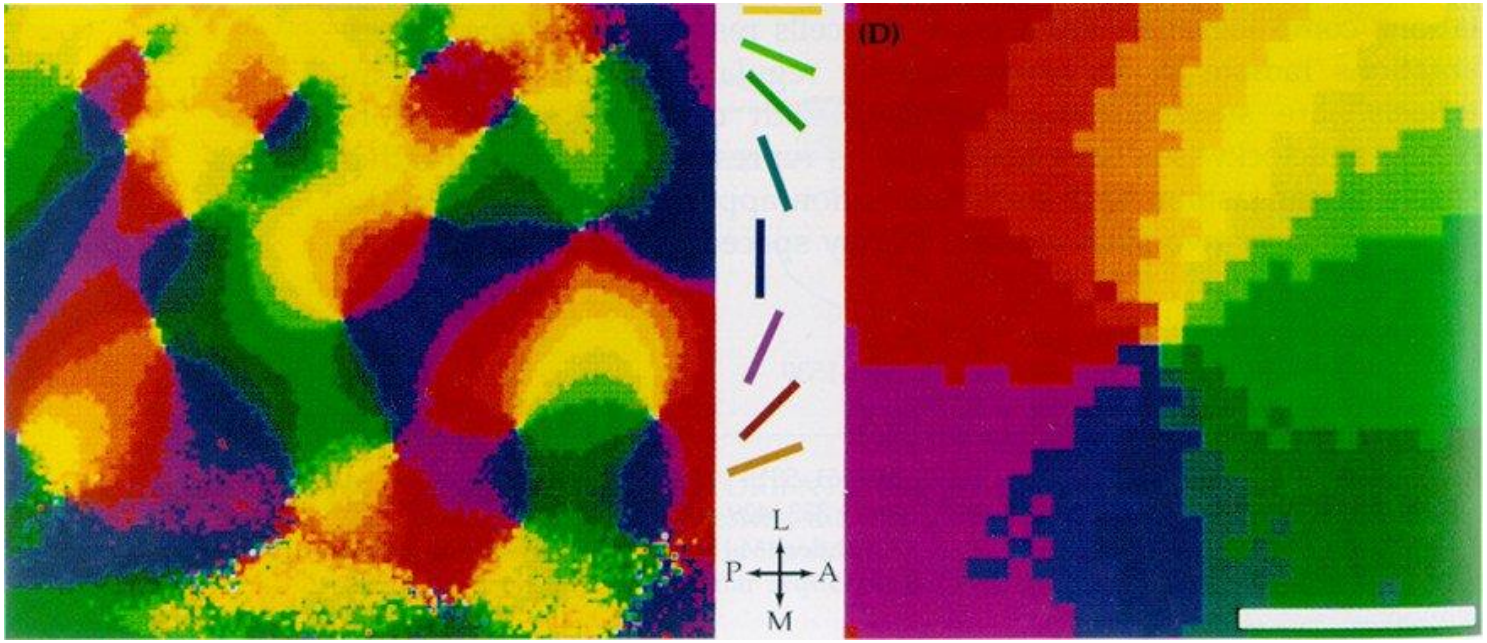


Abbildung 31 Orientation columns measured with optical imaging

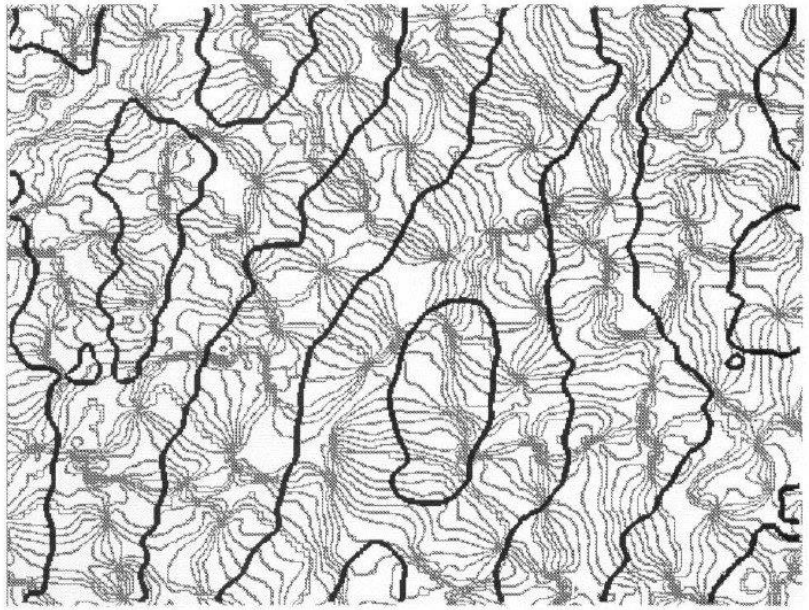


Abbildung 32 Orientation and ocular dominance columns

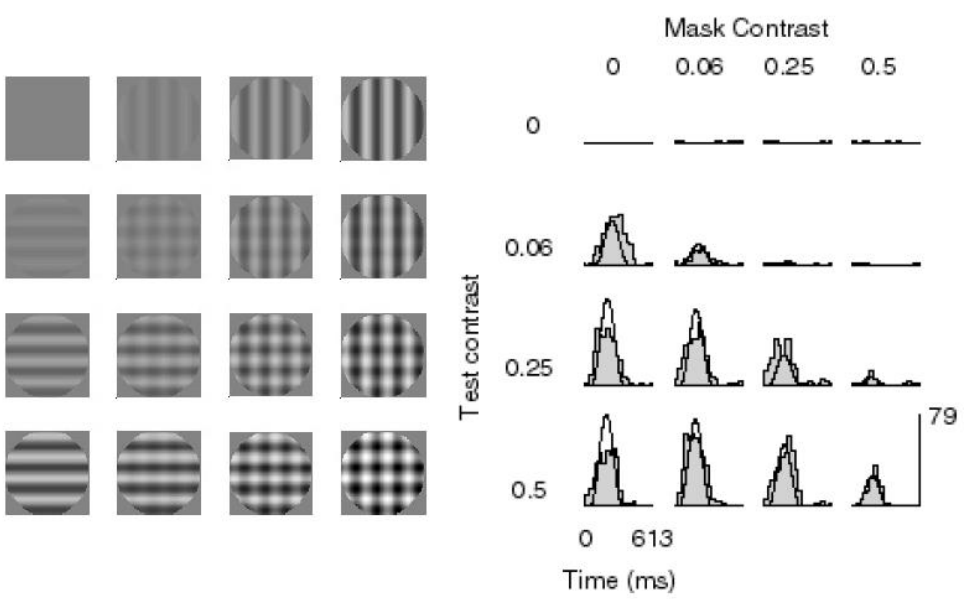


Abbildung 33 Masking: The mask acts inhibitory on the test contrast. Superposition is violated because of the nonnegativity of responses

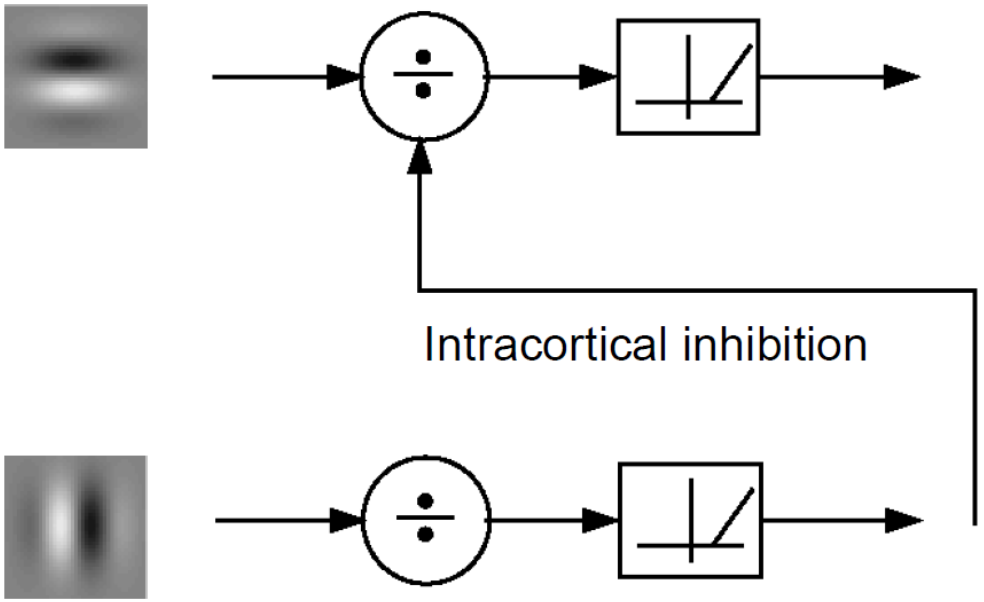


Abbildung 34 Nonlinear model of V1 simple cells

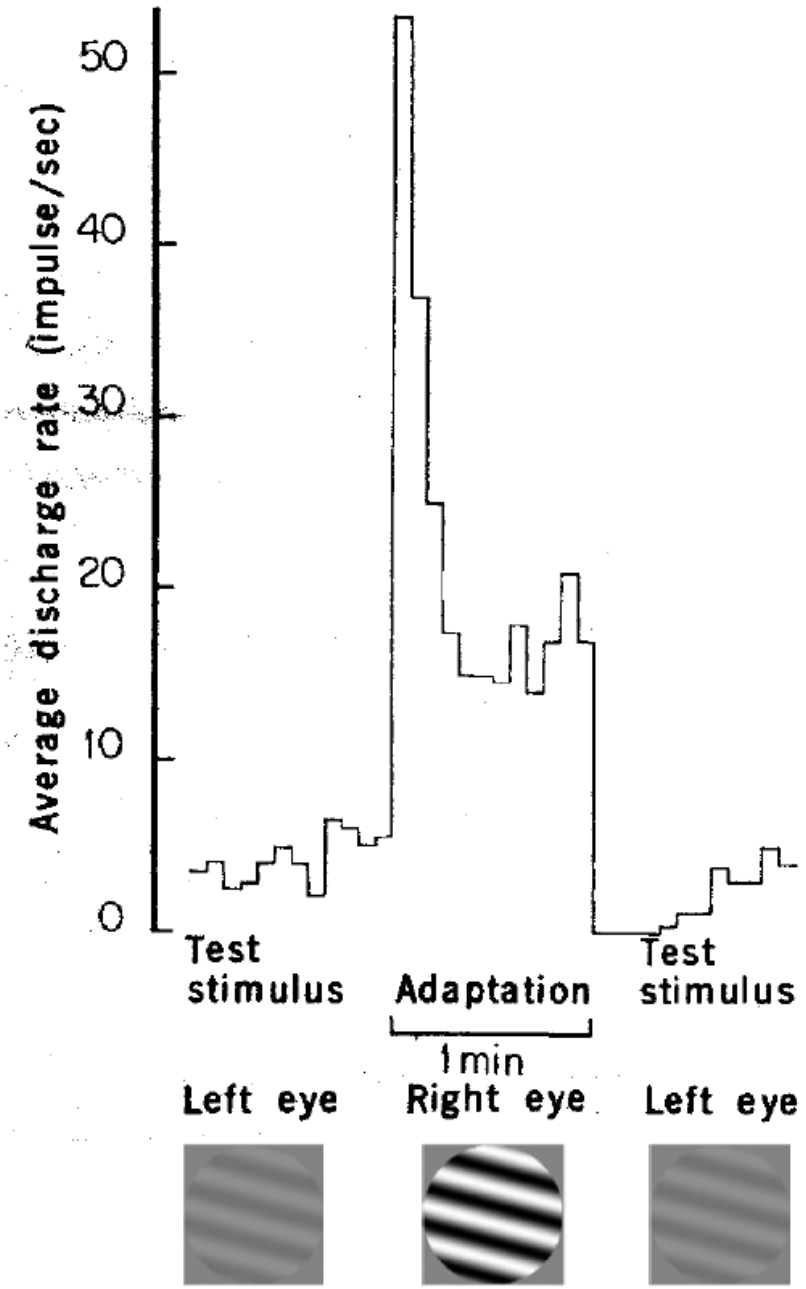


Abbildung 35 Adaptation in a V1 neuron

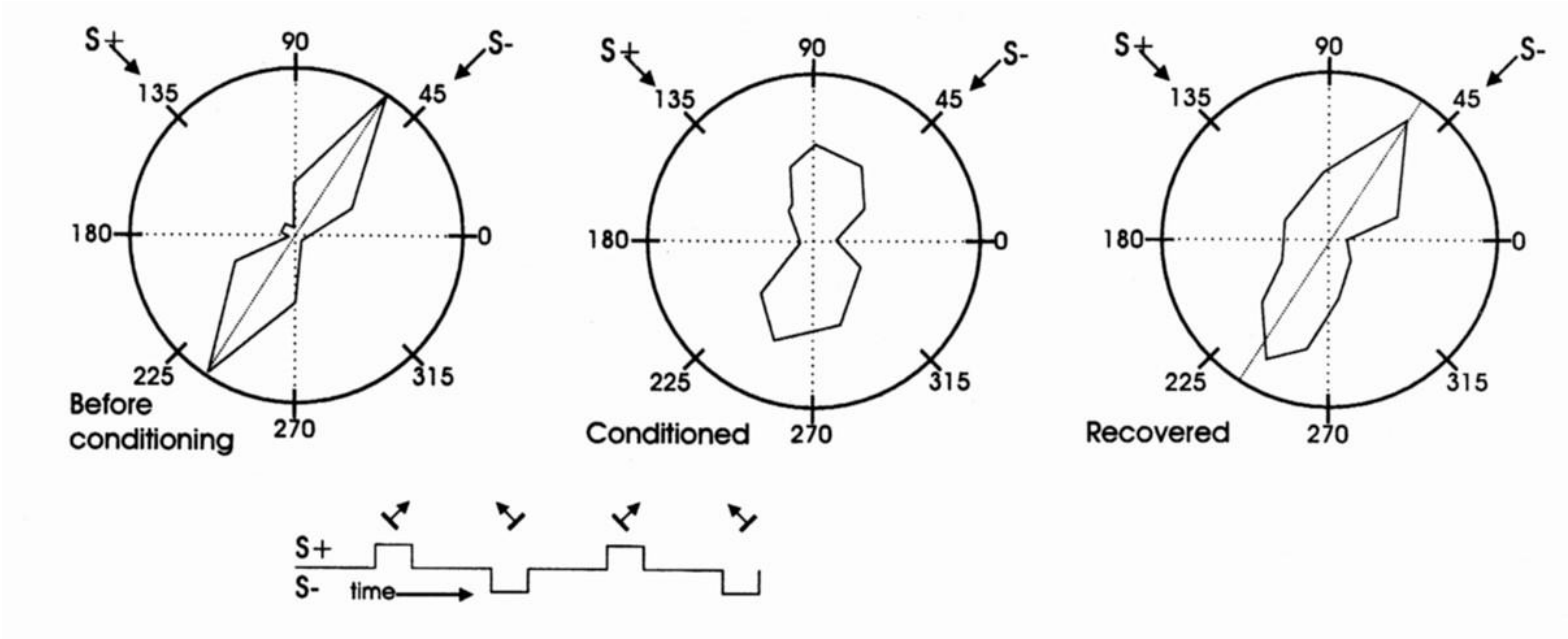


Abbildung 36 Hebbian Learning

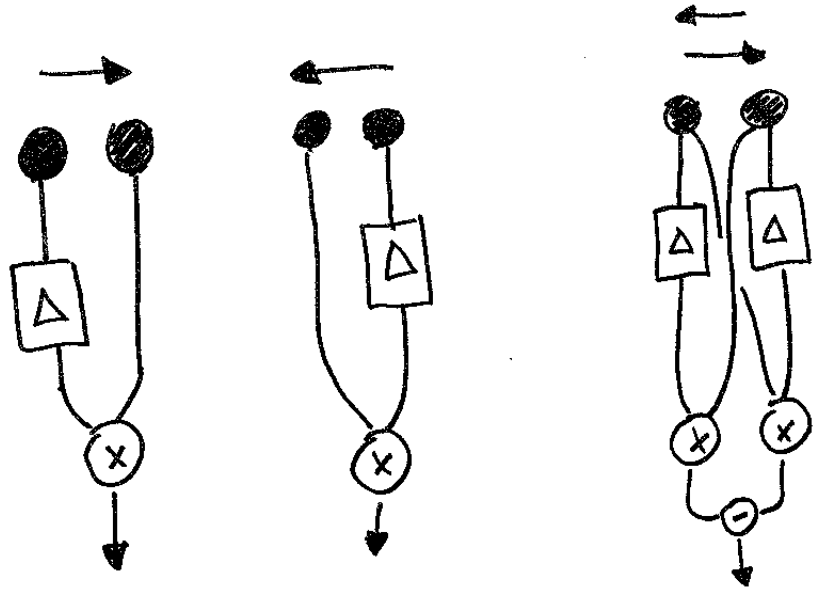


Abbildung 37 Reichardt detectors

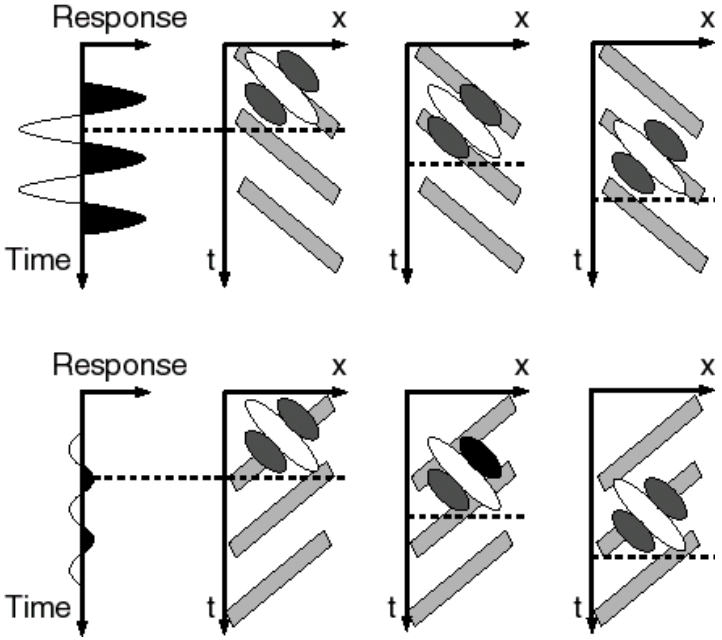


Abbildung 38 Space-time receptive fields and direction selectivity

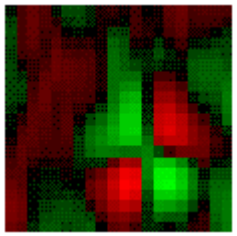


Abbildung 39 Space-Time separable RF of V1 simple cell

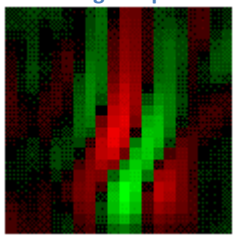


Abbildung 40 Space-Time inseparable RF of V1 simple cell

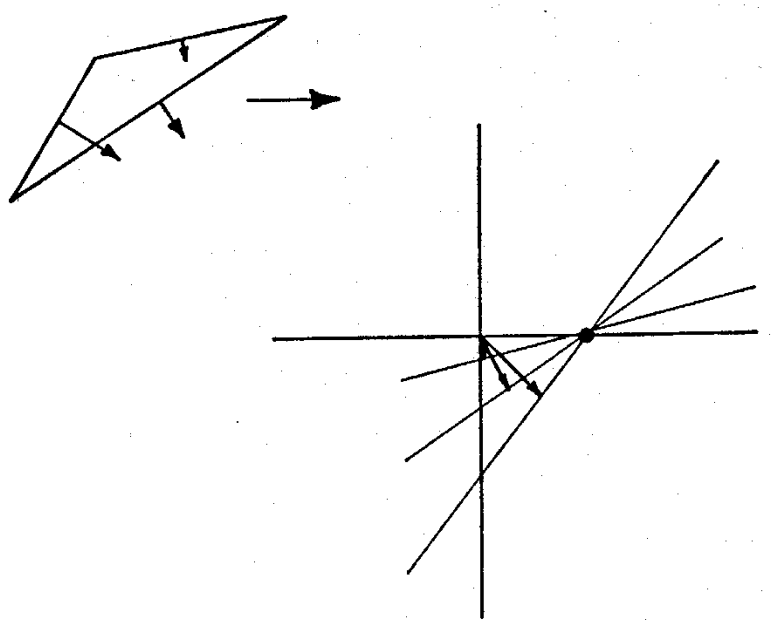


Abbildung 41 Intersection of constraints

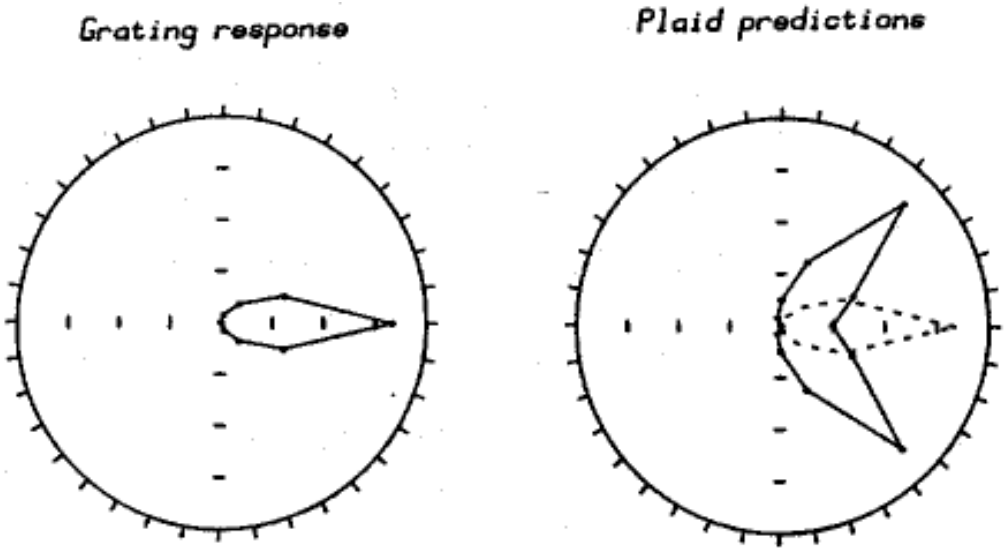


Abbildung 42 Component and pattern direction selectivity. R: Magnitude of response, Phi: Orientation of bar. For a grating (line), the direction of movement is always perpendicular to its orientation. Plaid = grid

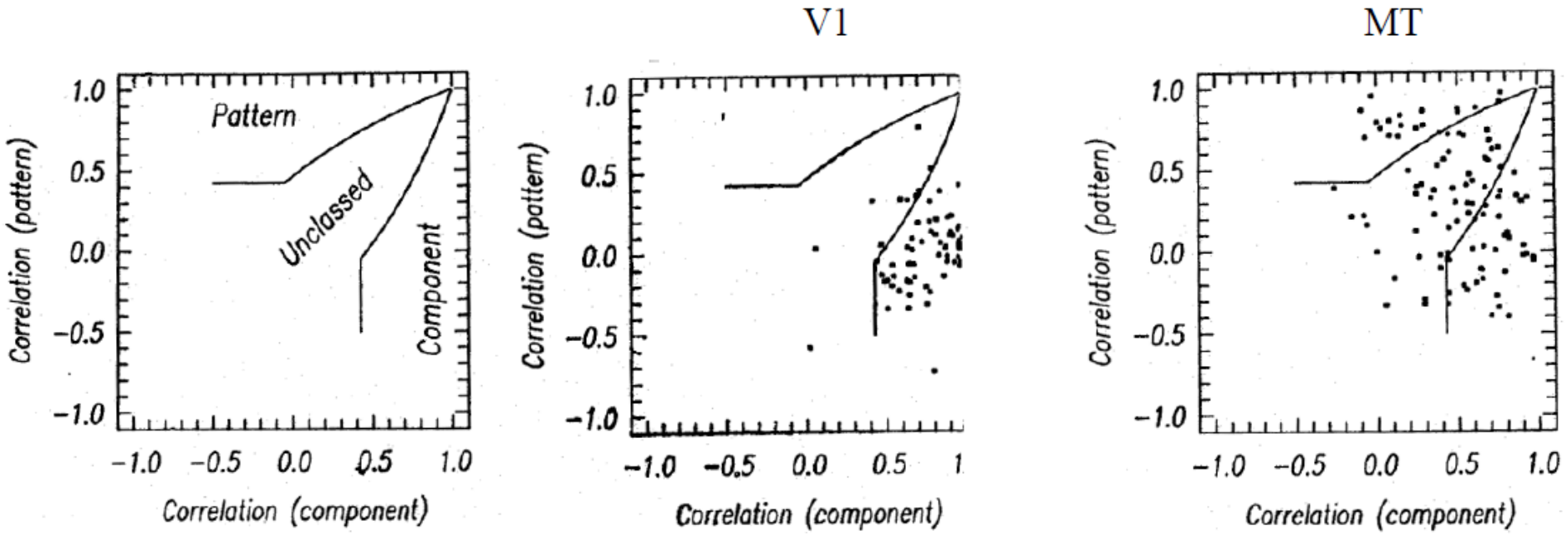


Abbildung 43 Population analysis of component and direction selective cells

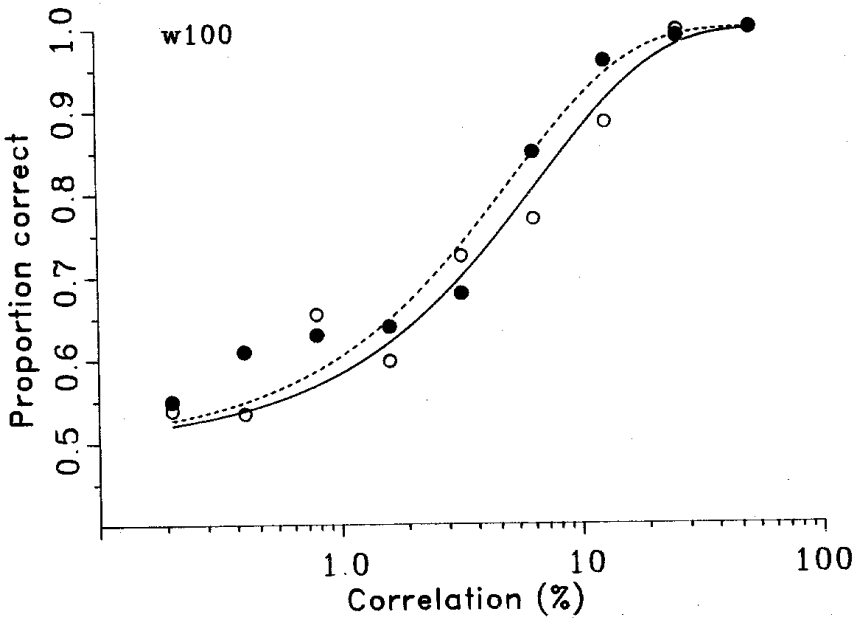


Abbildung 44 Perceptual and neural sensitivity

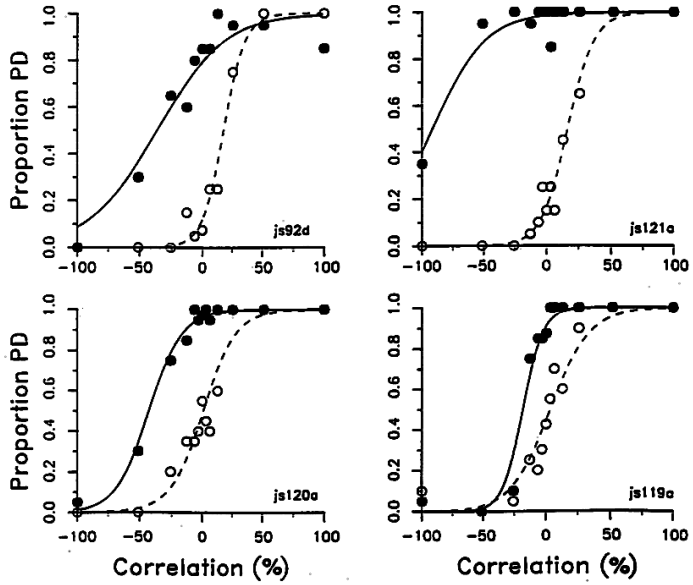


Abbildung 45 Microstimulation in MT cells

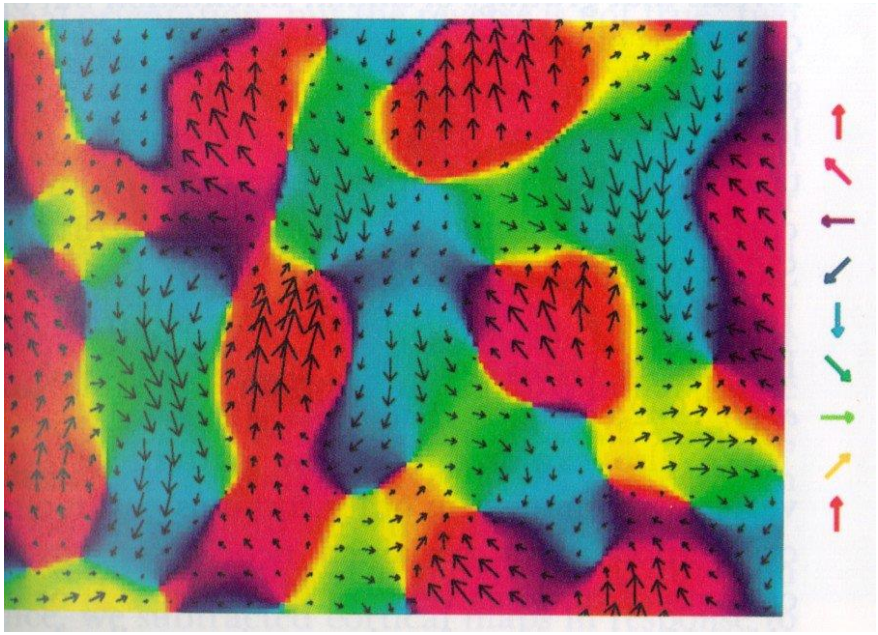


Abbildung 46 Functional map of direction selectivity in MT

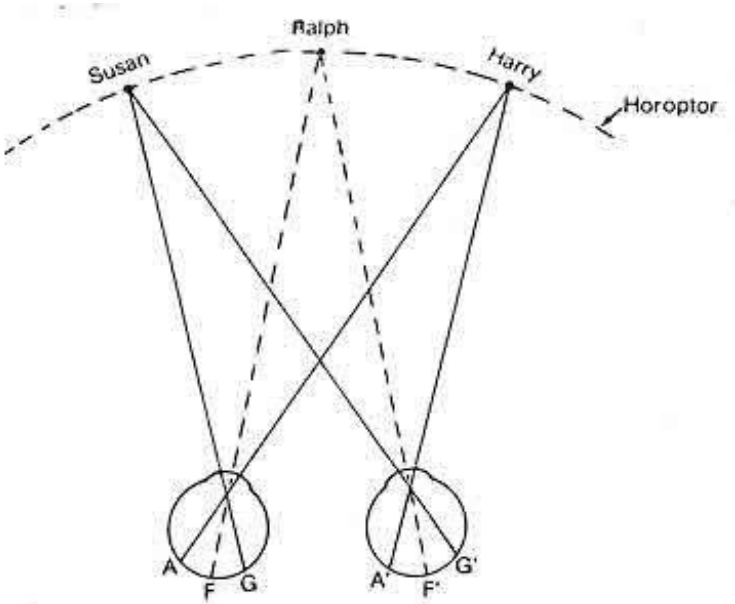


Abbildung 47 Horopter and retinal corresponding points (A and A', F and F', G and G')

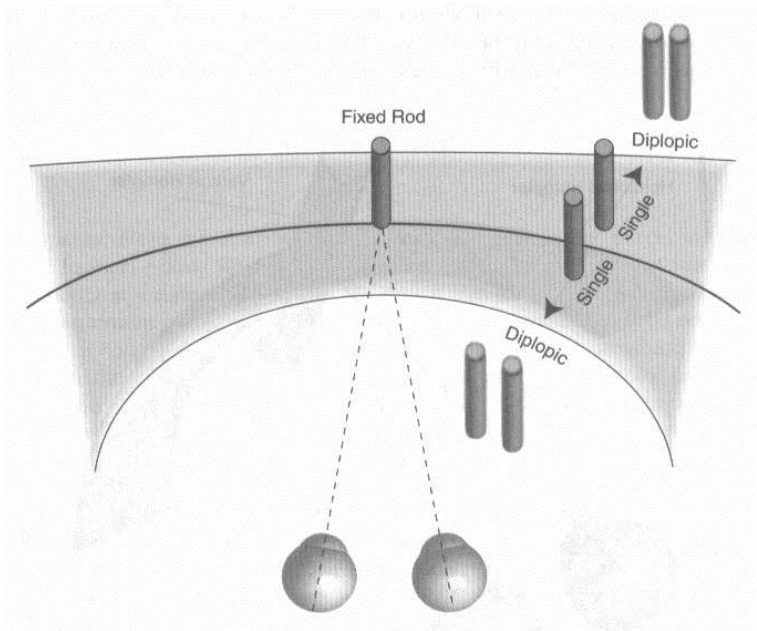


Abbildung 48 Panum's fusion area (grey shadow), Horopter (ellipsoid line)