Chapter 5: Sensory Processes

The Origins of Knowledge

empiricism retina distal stimulus proximal stimulus sensations association distance cues nativism transduced psychophysics detection discrimination scaling recognition difference threshold just noticeable difference (jnd) Weber's law Weber's fraction Fechner's law signal detection theory false alarm misses response bias payoff matrix detection experiment hit correct negative sensory code psychological intensity sensory quality doctrine of specific nerve energies specificity theory pattern theory A Survey of the Senses kinesthesis semicircular canals vestibules pressure, warmth, cold, pain vibration, tickle, itch taste buds sour, sweet, salty, bitter adaptation olfaction olfactory epithelium pheromones vomeronasal organ menstrual synchrony audition sound waves amplitude, frequency, wavelength loundness, pitch decibels, hertz sine waves

cochlea outer ear eardrum auditory canal oval window middle ear inner ear auditory ossicles basilar membrane hair cells place theory frequency theory Vision emit, reflect intensity, wavelength visible spectrum ultraviolet light, infrared photoreceptors retina, retinal image lens cornea accommodation iris rods, cones fovea bipolar cells, ganglion cells optic nerve lateral geniculate nucleus blind spot duplex theory of vision achromatic acuity spectral sensitivity curve visual pigment rhodopsin adaptation phenomena stabilized image brightness contrast Mach bands lateral inhibition hue, brightness, saturation achromatic, chromatic color circle color disk color solid subtractive mixture additive mixture trichromatic Young-Helmholtz theory complementary color simultaneous color contrast negative afterimage opponent-process theory receptive field

feature detector simple cells complex cells aftereffect of visual movement