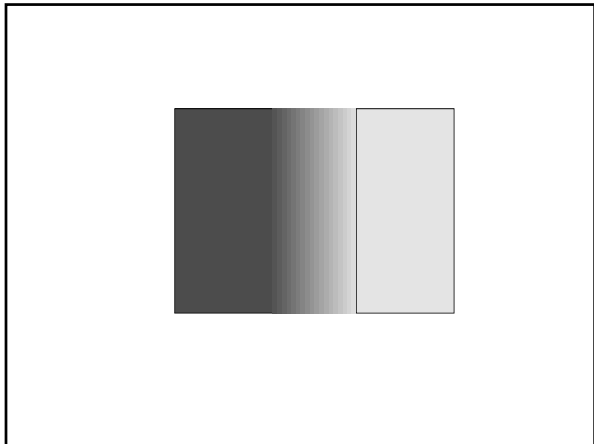
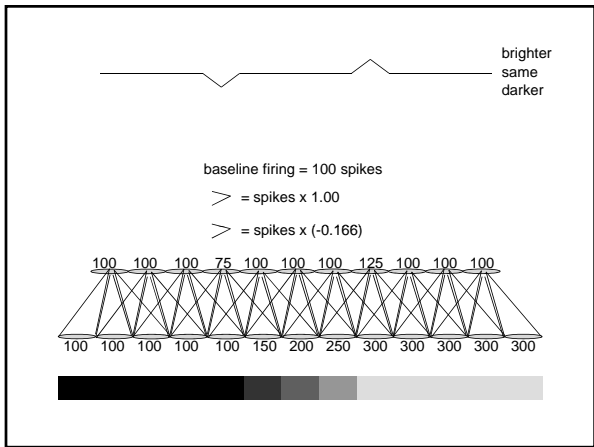
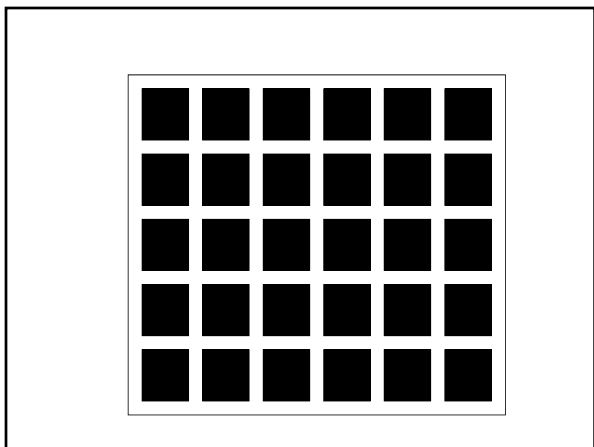


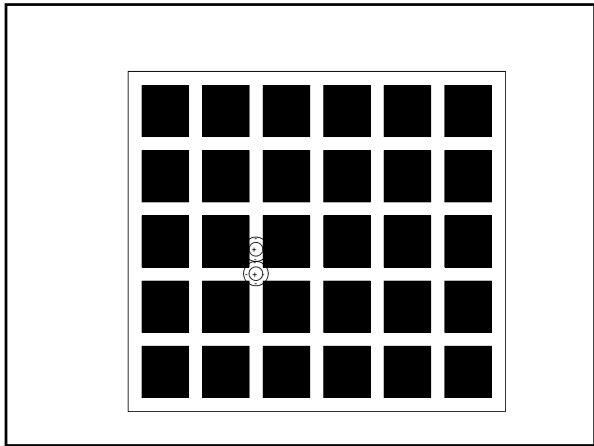
Lateral Inhibition

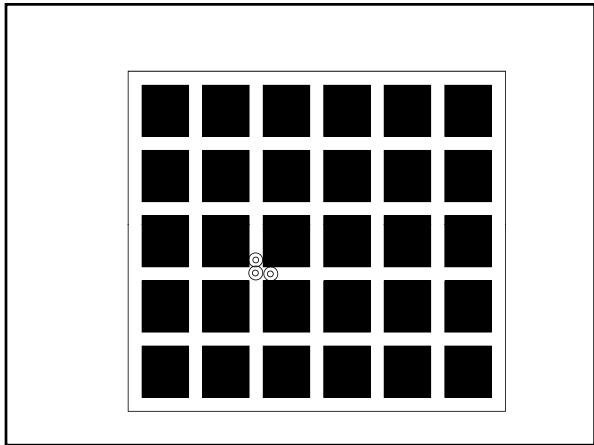
- Why does Brightness Contrast occur?
- firing rates
- lateral inhibition

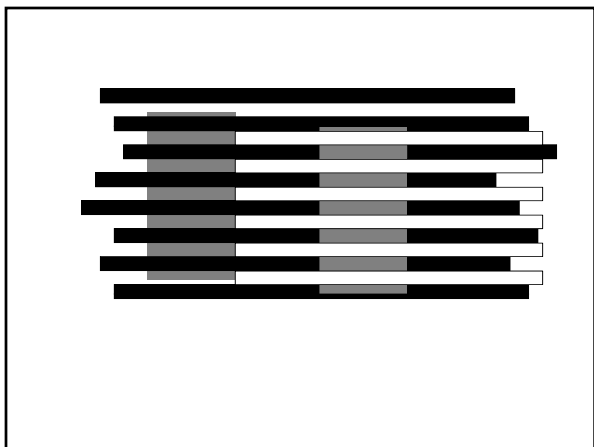


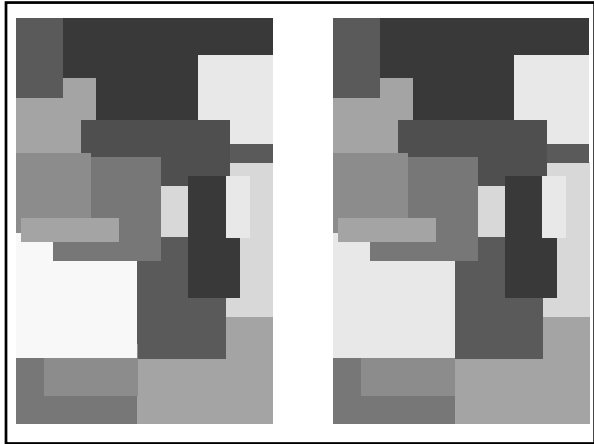








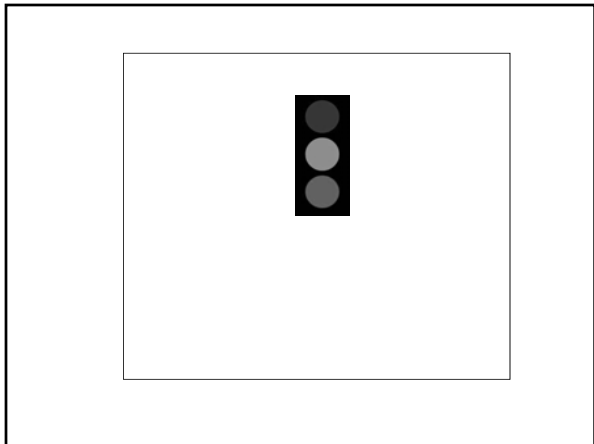




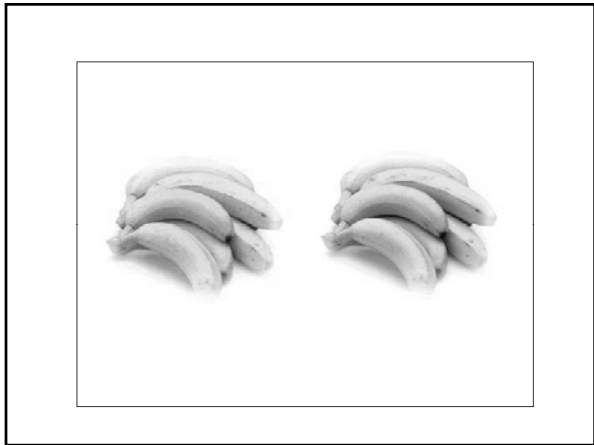
Summary of factors that affect the brightness of an object:

- Brightness is affected by the current state of sensitivity of the eye.
- Brightness is affected by the wavelength of light.
- Brightness is affected by the brightness of surrounding objects.

Darkness Versus Brightness Perception

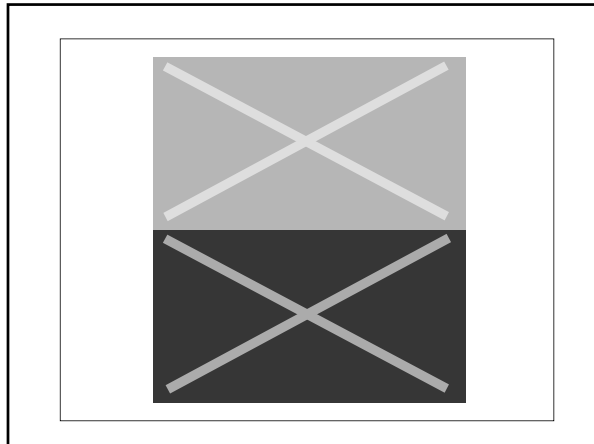






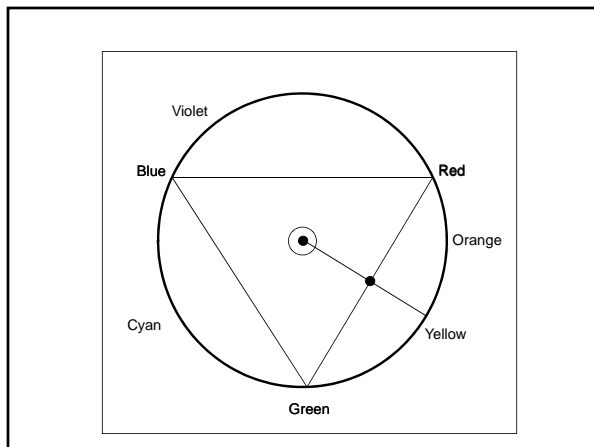
Colour Vision

- Newton
 - Prisms
 - Wavelengths
 - “The Rays so to speak properly are not coloured. In them there is nothing else than a certain Power and Disposition to stir up a Sensation of this or that Colour... So Colours in the Object are nothing but a Disposition to reflect this or that sort of Rays more copiously than the rest...”
 - Wavelengths and photons DO NOT have colour



Colour Mixing

- Thomas Young
- Helmholtz & Maxwell
- Predicting colour



The psychology of colour perception

Three psychological dimensions of colour:

1. HUE

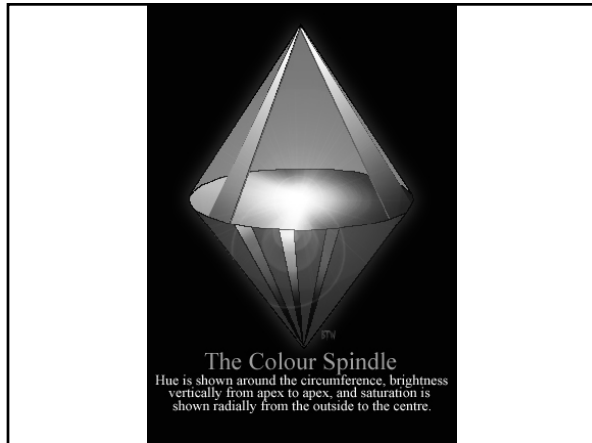


2. SATURATION

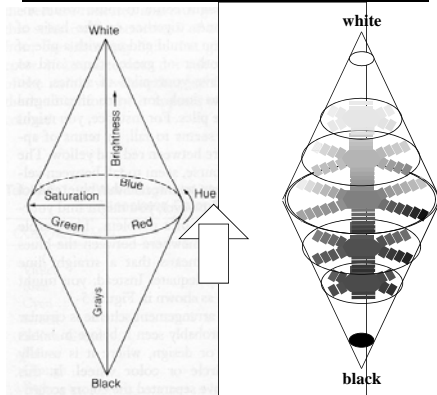


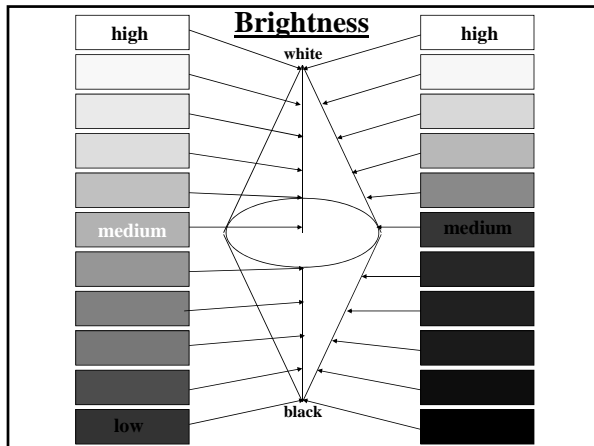
3. BRIGHTNESS





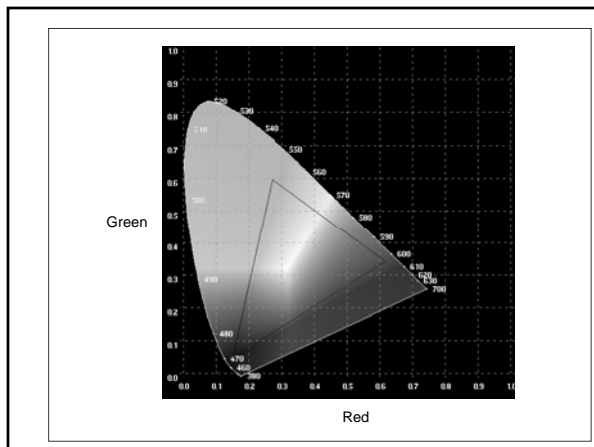
The psychology of colour perception





Colour Mixing

- Thomas Young
- Helmholtz & Maxwell
- Predicting colour
- CIE--imaginary primary colours



Theories of Colour Vision

- How do we see colour?
- Trichromatic
- Opponent Process

Trichromatic Theory

- Young-Helmholz
- only need three types of cones
 - erythrolabe
 - chlorolabe
 - cyanolabe
- What kinds of evidence?

Kinds of Colour Blindness

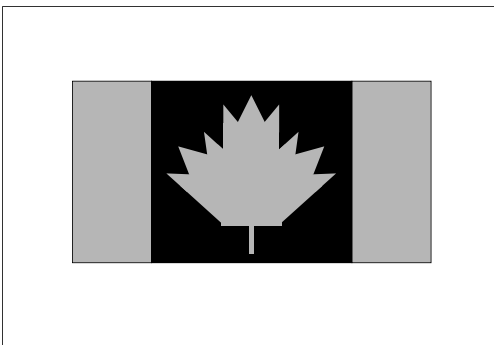
- Complete colour blindness
- monochromatic
- dichromatic
 - protanopia
 - deuteranopia
 - tritanopia

Incidence (%)

	Males	Females
Anomalous Trichromacy	6.3	0.37
• Protanomaly (L-cone defect)	1.30	.02
• Deuteranomaly (M-cone defect)	5.00	.35
• Tritanomaly (S-cone defect)	0.0001	0.0001
Dichromacy	2.4	0.03
• Protanopia (L-cone absent)	1.30	.02
• Deuteranopia (M-cone absent)	1.20	.01
• Tritanopia (S-cone absent)	0.001	0.03
Rod Monochromacy (no cones)	0.00001	0.00001

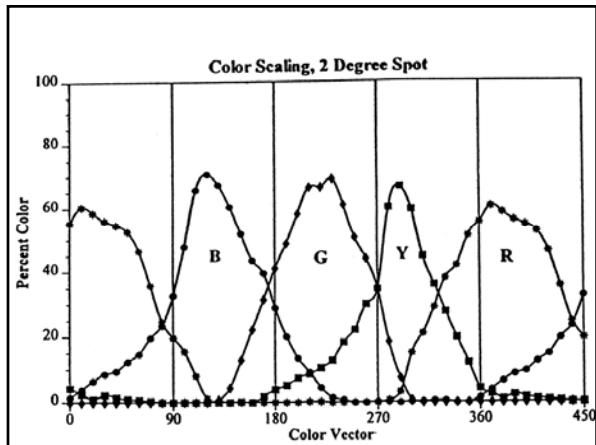
Other Evidence? Physiological

- microspectrophotometric studies



Opponent Process Theory

- Hering
- 4 primary colours?
 - red, green, blue, yellow
- Never see
 - reddish-green
 - yellowish-blue



Competing Theories

- Which is correct?
- Both--well maybe.....
- three types of cones
- bipolar/ganglion/higher -- opponent process
- Retinex Theory



Colour Perception

- Individual Differences
 - sex
 - age
- Cultural Differences
 - colour naming
 - temperature
 - memory for
- Spatial Interactions
 - Context
