Visual comfort

- Key aspects of daylit environment
  - Visual performance
  - Physiological conditions
  - Visual quality

Visual comfort

- Key aspects of daylit environment
- Objectives
  - Harmonious luminance distribution (no strong contrasts)
  - Good color rendering (continuous spectrum, appropriate color T°)
  - Adequate illuminance level
  - No disturbing reflections
  - No direct glare

Visual comfort

- Key aspects of daylit environment
- Objectives
- Recommended illuminances

	Illuminance [lux]		
Type of space and function	Min	Mid	Max
Circulation, corridors, theatres, concert halls	50	100	200
Workshops, retail centres	200	300	400
Schools, offices, usual tasks, reading, writing, computer work, ...	300	400	500
Delicate work, drawing, technical tasks, ...	500	750	1000
Precision workshops, clockwork, color control, visual quality control, ...	1000	to	5000

Visual comfort

- Visual adaptation

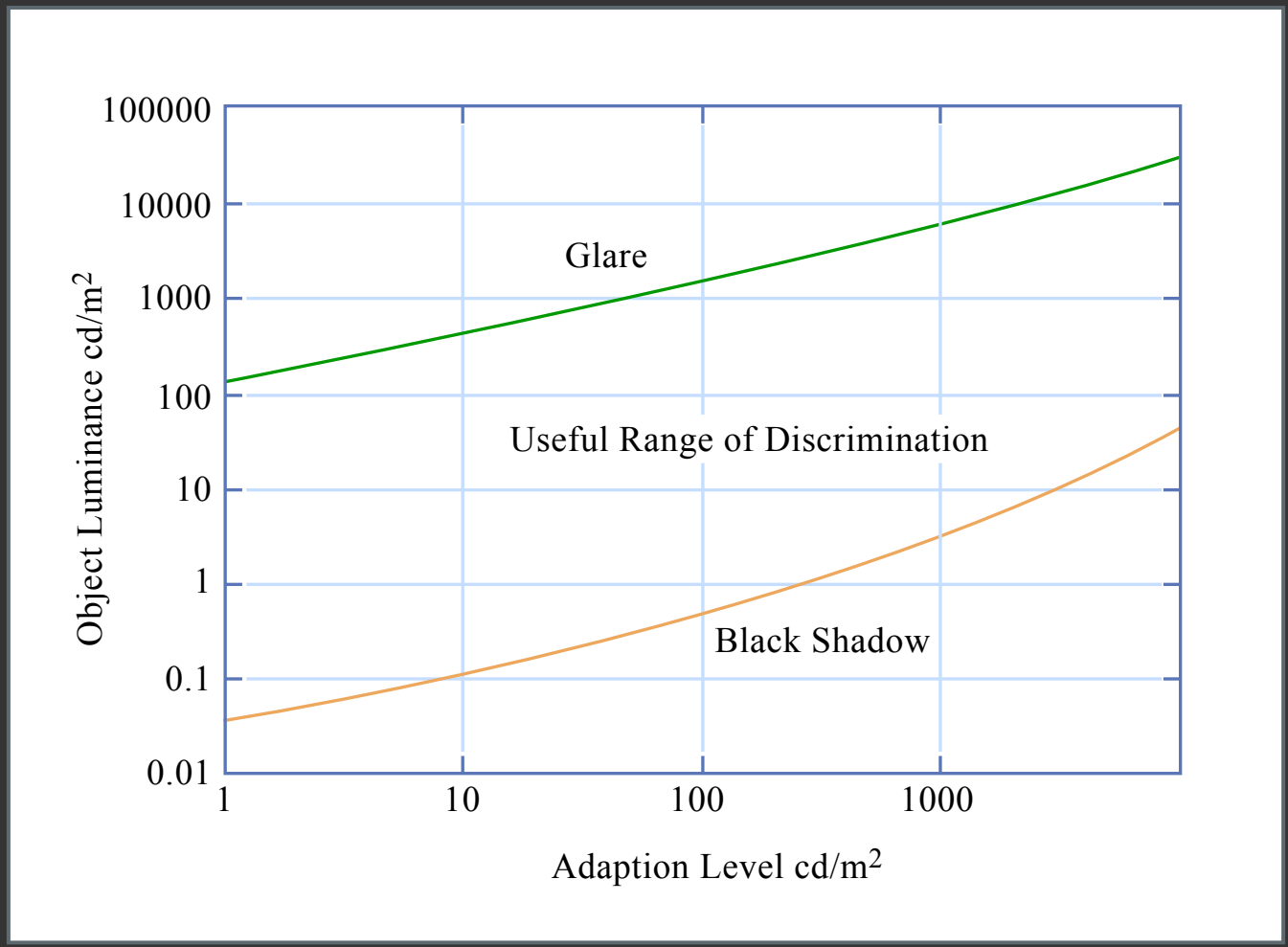
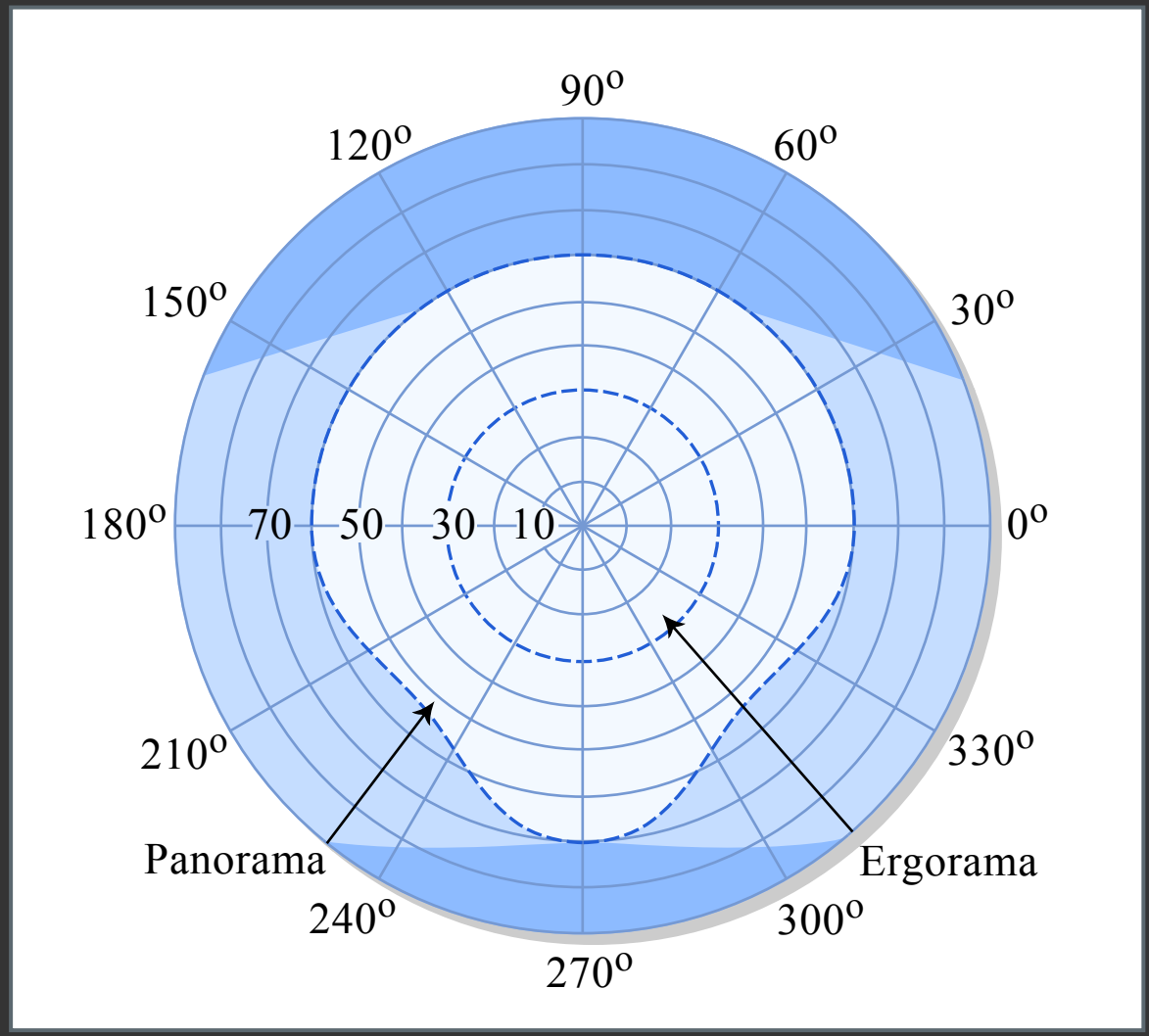


Figure by MIT OCW.

Visual comfort

- Visual adaptation
- Visual field
  - central field (fovea)
  - ergorama (cones)
  - panorama (rods)



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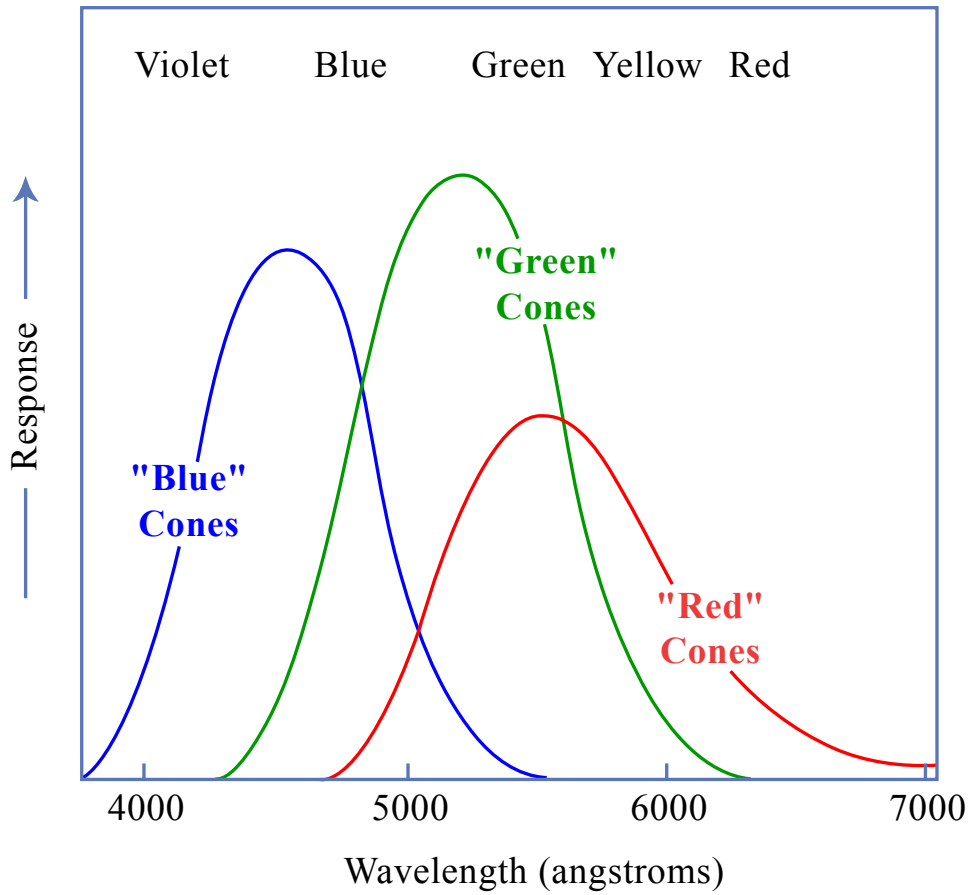

THE EYE'S THREE COLOR RECEPTORS

Figure by MIT OCW.

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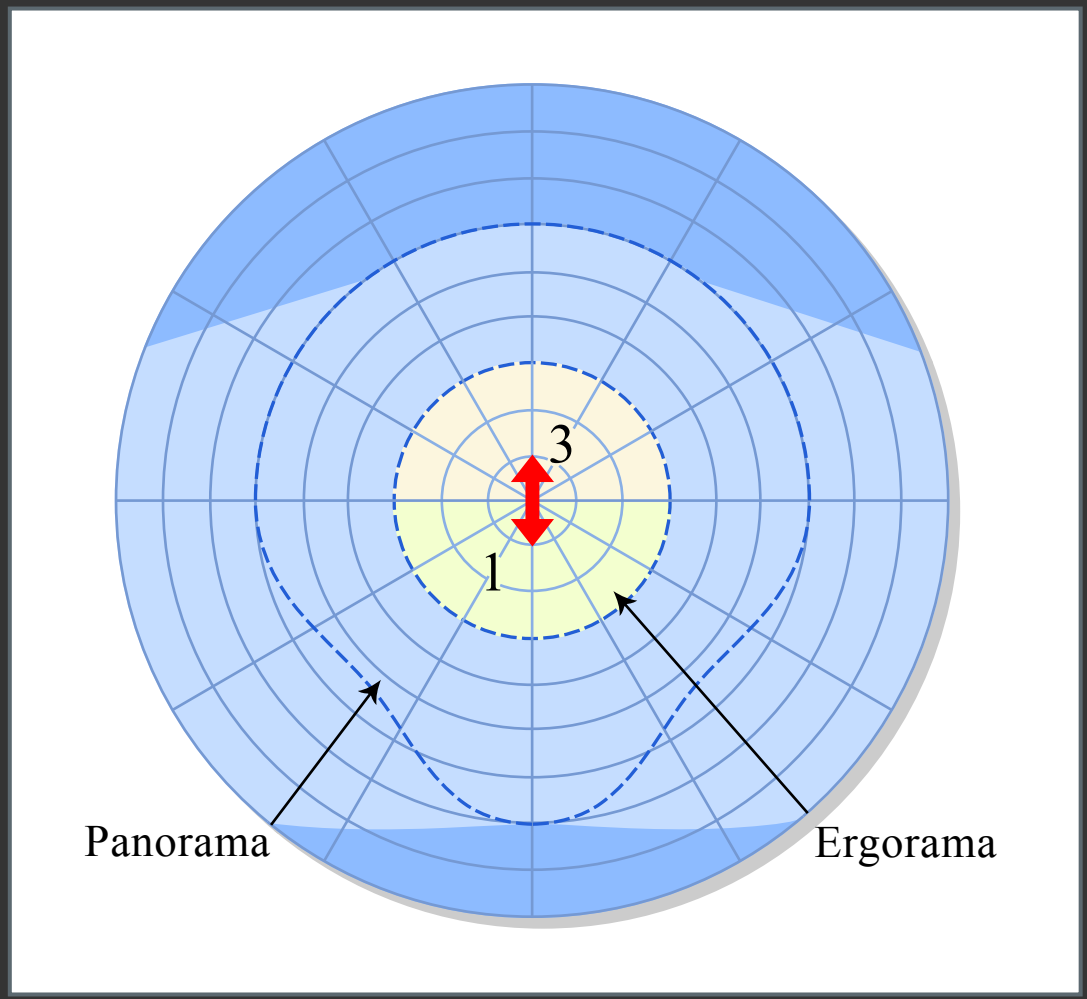

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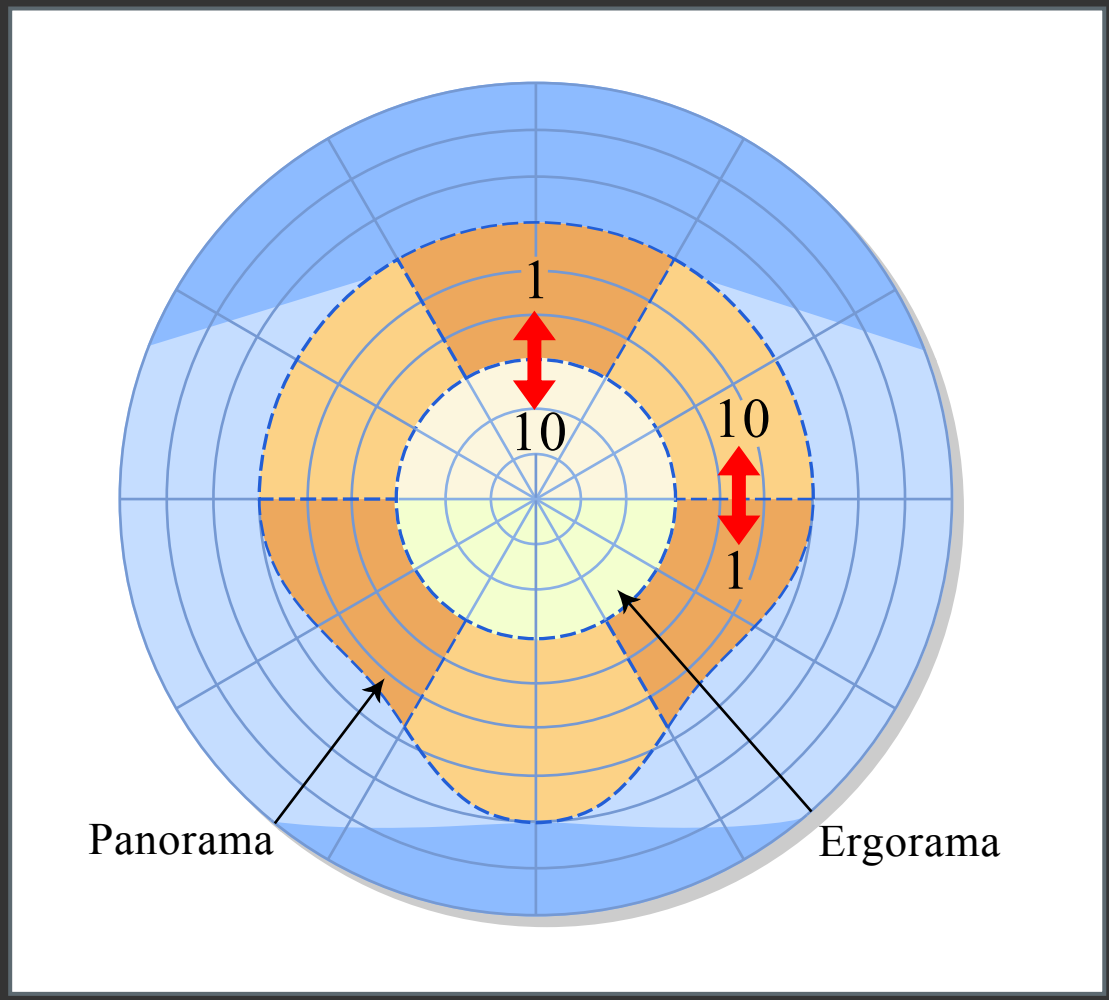

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- Visual adaptation
- Visual field
- Visual performance
  - person & task
  - illuminance on work plane
  - luminance contrast
  - visual fatigue

Visual comfort

- Visual adaptation
- Visual field
- Visual performance
  - person & task
  - illuminance on work plane
  - luminance contrast
  - visual fatigue
  - example: work place

Image courtesy of Prof. B. Paule, Estia SA, Lausanne, Switzerland.

Visual comfort

- Visual adaptation
- Visual field
- Visual performance
- Glare
  - physiological (disability)
  - psychological (discomfort)

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- Visual field
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  - sources:
    - glazed openings & sun patches

Visual comfort

- Visual adaptation
- Visual field
- Visual performance
- Glare
  - physiological (disability)
  - psychological (discomfort)
  - sources:
    - glazed openings & sun patches
    - specular reflections

Visual comfort

- Visual adaptation
- Visual field
- Visual performance
- Glare
  - physiological (disability)
  - psychological (discomfort)
  - sources:
    - glazed openings & sun patches
    - specular reflections
    - inappropriate electric lights

Visual comfort

- Stansted airport, London

Visual comfort

- Users' preferences
  - natural lighting
  - open view
  - visual effects
  - harmonious colors
  - specific conclusions
    - daylight
    - sunlight
    - windows