Perception

Lecture 17, Week 10
March 9, 2015
CSC318H1S
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Announcements

- Assignment 4 is due today at noon
- Elevator pitch on Wednesday?
- Phase 2 and Phase 3 feedback on TEAMMATES

Phase 4

Phase 4 is due in three stages:

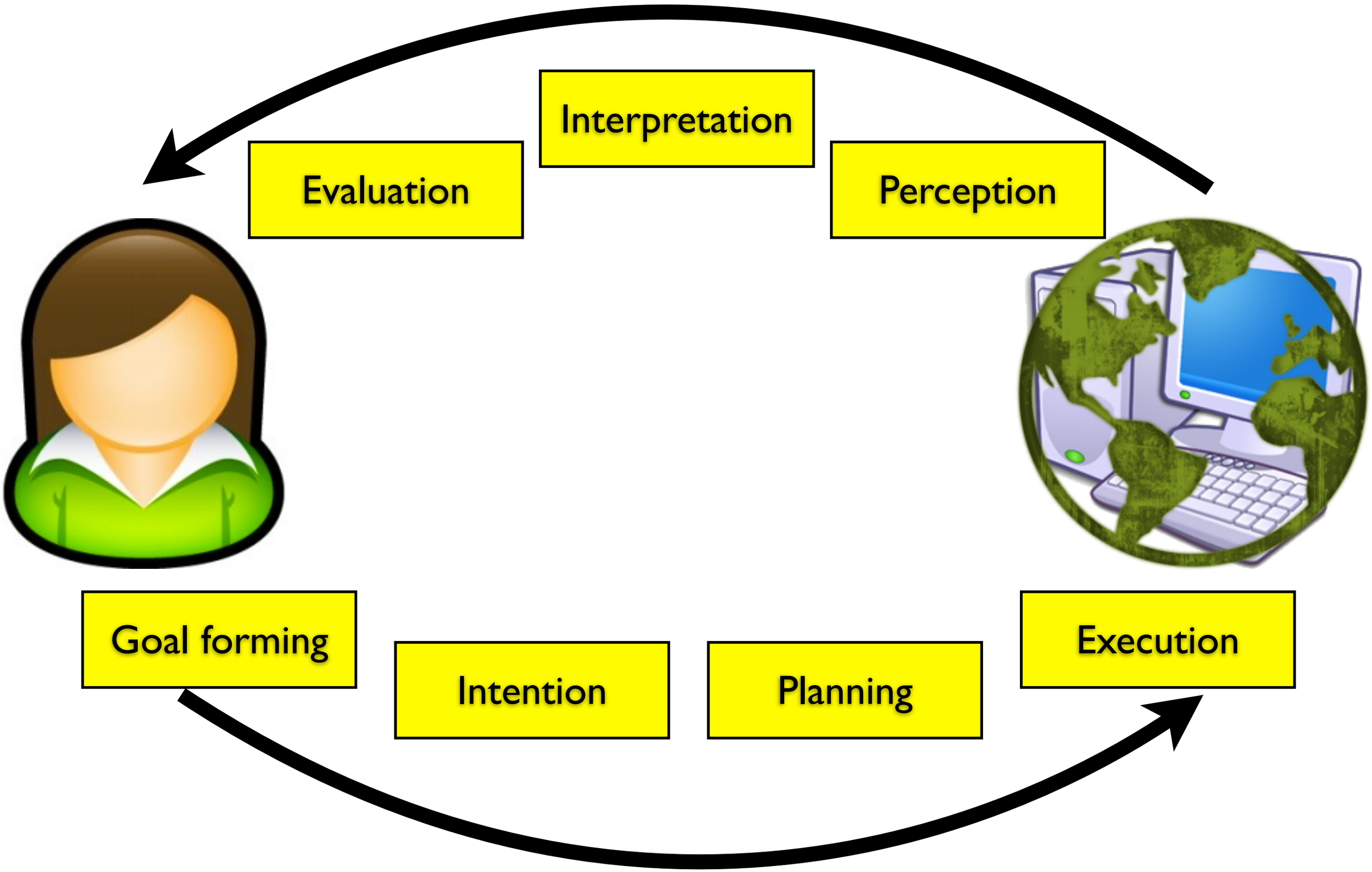
- Friday: Conduct informal evaluation with stakeholders, group members or usability experts.

- Wednesday Mar. 18 at noon: submit Phase 4, including prototypes.

- Friday Mar. 20: Come to the tutorial slot in this room to perform official evaluation for A5.

Cognition and Action

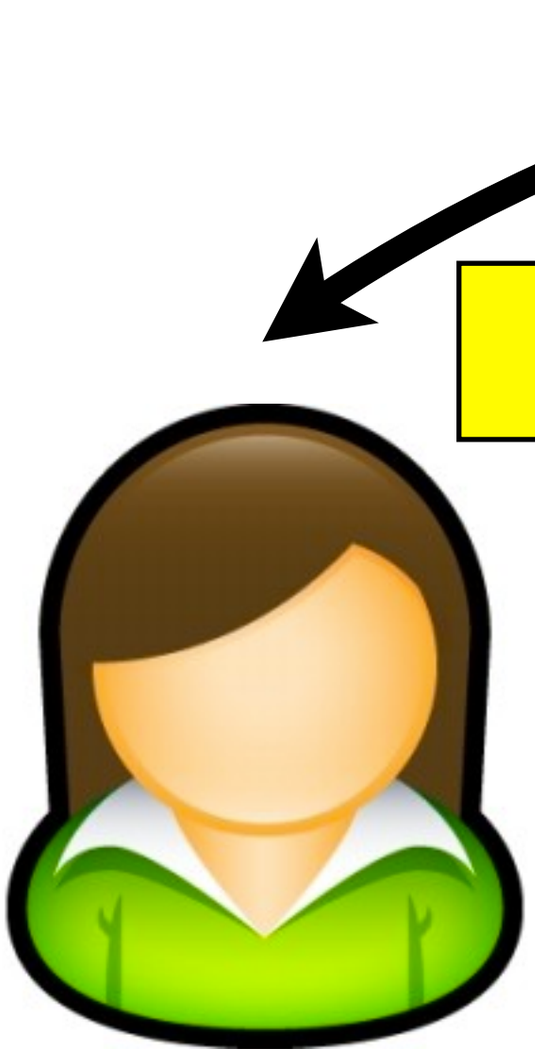
Norman's Stages of Action



Norman's Stages of Action

https://www.youtube.com/watch?v=ahtOCfyRbRg

Norman's Stages of Action



Interpretation

Evaluation

Perception

← - - Gulf of Evaluation - - →

not clear what the state of the system is

← - - Gulf of Execution - - →

not clear what actions can be taken

Goal forming

Intention

Planning

Execution

Perception

Perception

Perception: identifying, organizing and interpreting information about our environment we receive through the senses, typically to ***guide action***.

Perception occurs outside our conscious awareness and is virtually impossible to influence.

Two types of processes interact in perception:

Bottom-up processing: combining information from individual sensory cells into more complex representations of objects.

Top-down processing: previous knowledge, memory, expectations and attention.

The Human Eye

The image that enters the eye is inverted and corrected later.

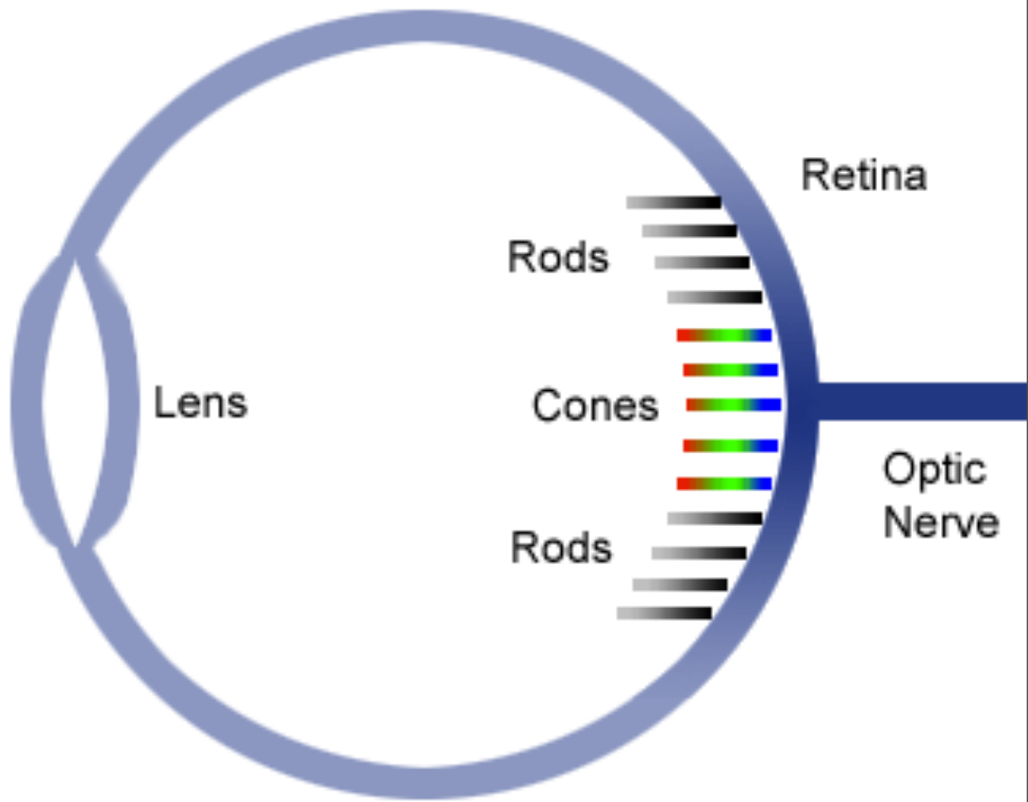
There are two types of photosensitive cells:

Cones: around the centre of the image (the fovea).

- High-resolution of detail
- Perceive colour

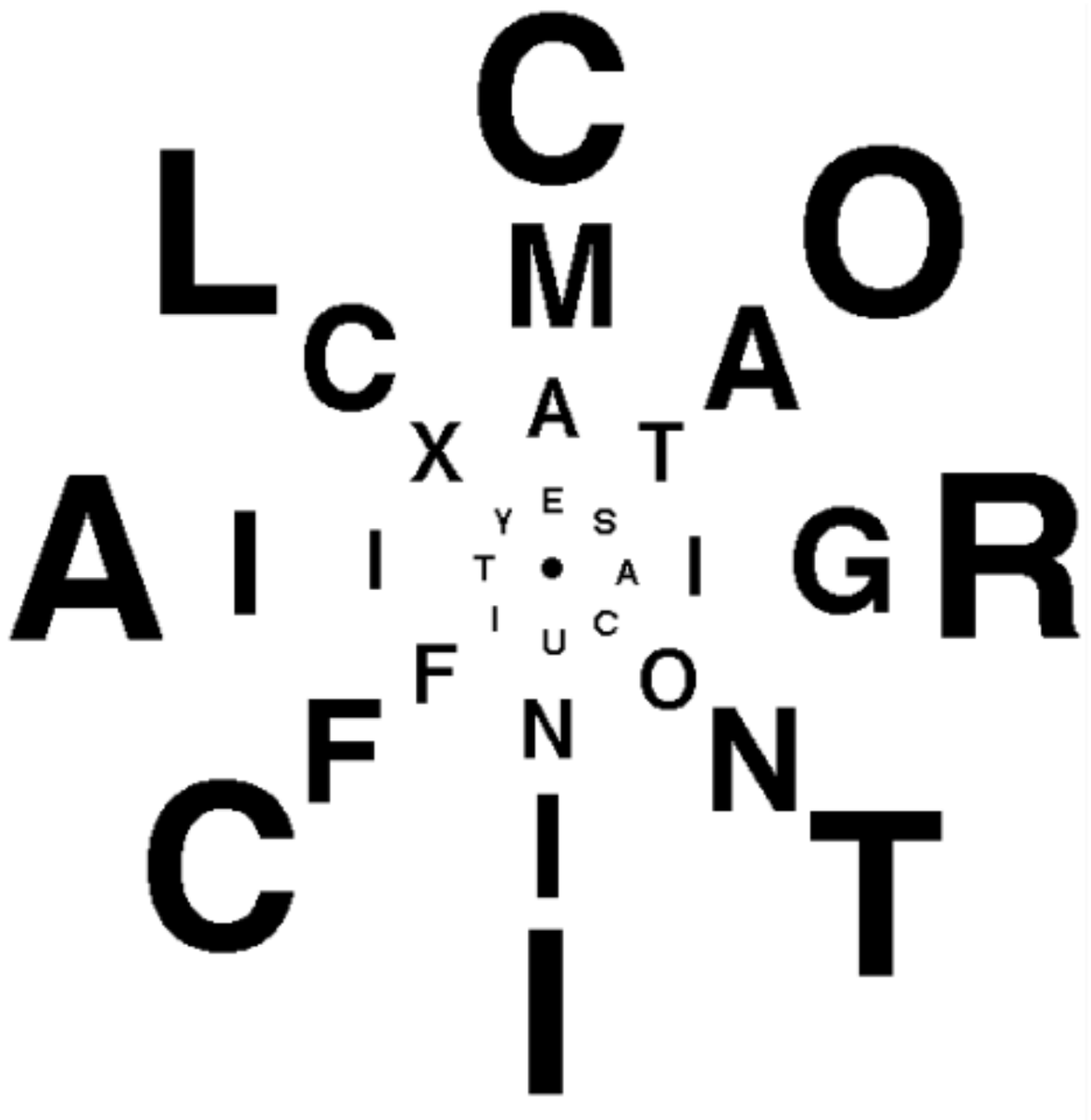
Rods: around the fovea.

- Luminance and contrast
- Peripheral vision
- Motion



Source: http://starizona.com/acb/ccd/advtheorycolor.aspx

Peripheral Acuity



12 Source: http://www-psy.ucsd.edu/~sansKs/SABlur.html

The Human Eye

We have two eyes for:

- stereoscopic vision: combines input into one coherent whole and lets us estimate distance

- redundancy

Useful properties:

- sensitive to the parts of the EM spectrum that are abundant in the world and do not pass through objects

- **saccades**: rapid movements to "refresh" the photo cells and to eliminate the blind spot

- **vestibulo-ocular reflex**: eyes automatically compensate for movements of the head

Colour

The eye has receptors for (vaguely) three different colours: blue, red and green.

Blue is the least well perceived (only 4% of cones are blue receptors).

Blue text on a black background is really hard to read.

Red text on a black background is much easier.

Red text on a blue background is a nightmare.

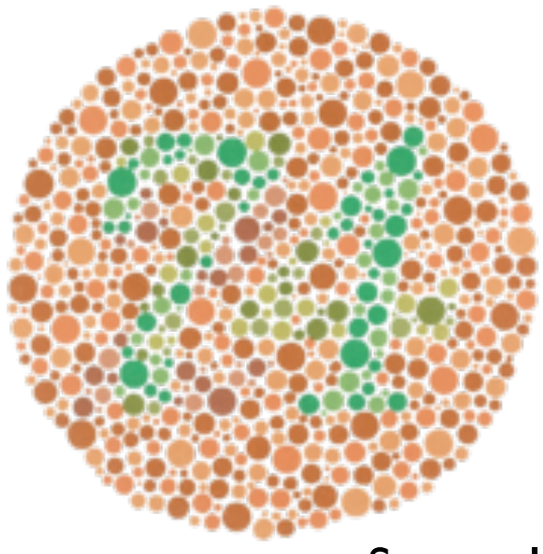
Colour Blindness

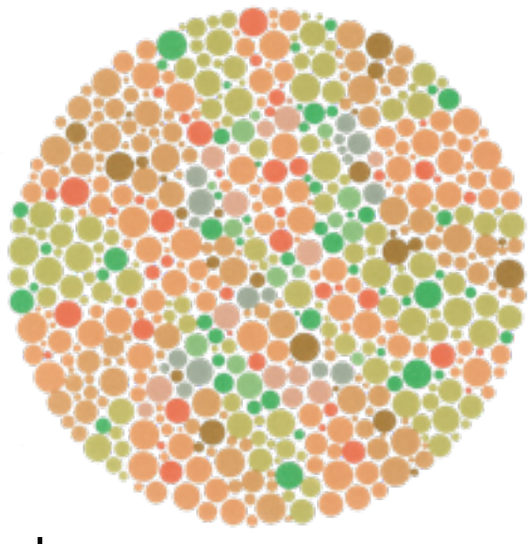
Colour blindness affects 9% of the population and prevents them from distinguishing certain colours.

Red/green colour blindness is the most common.

To design for colour blindness:

- avoid salient red-green distinctions
- use blue/yellow spectrum
- use greyscale





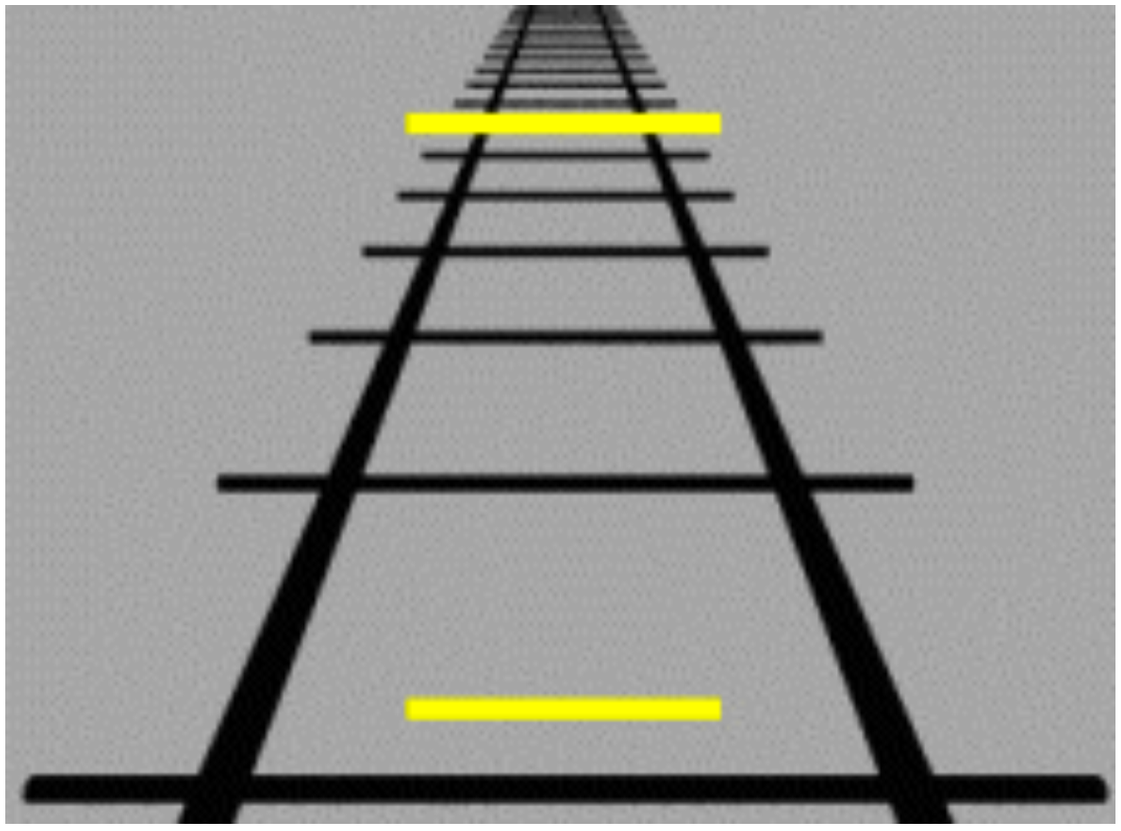
Source: Ishihara colour test

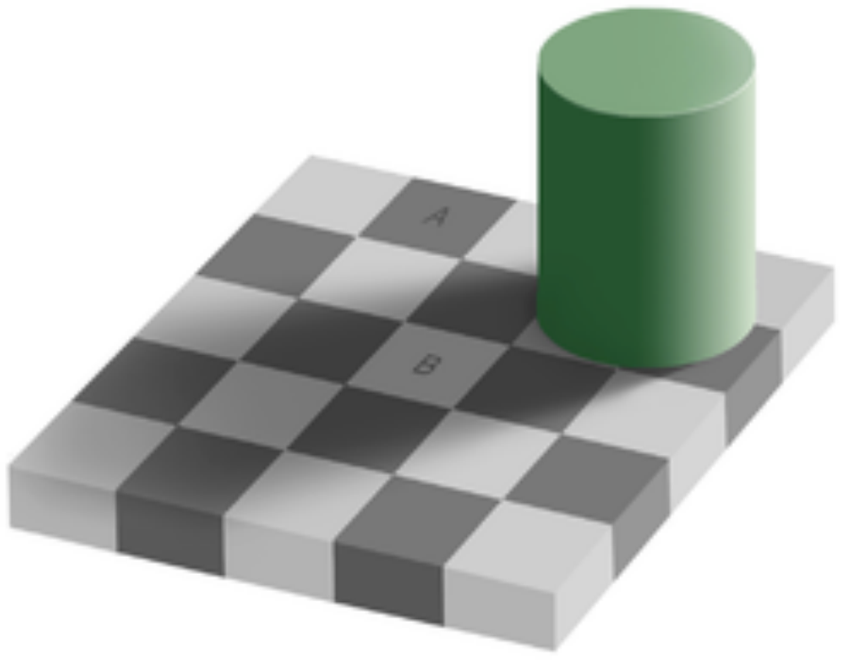
Source: Ilona Posner

Subjective Constancy

Most observable stimuli in the world are unchanging objects, i.e., are constant.

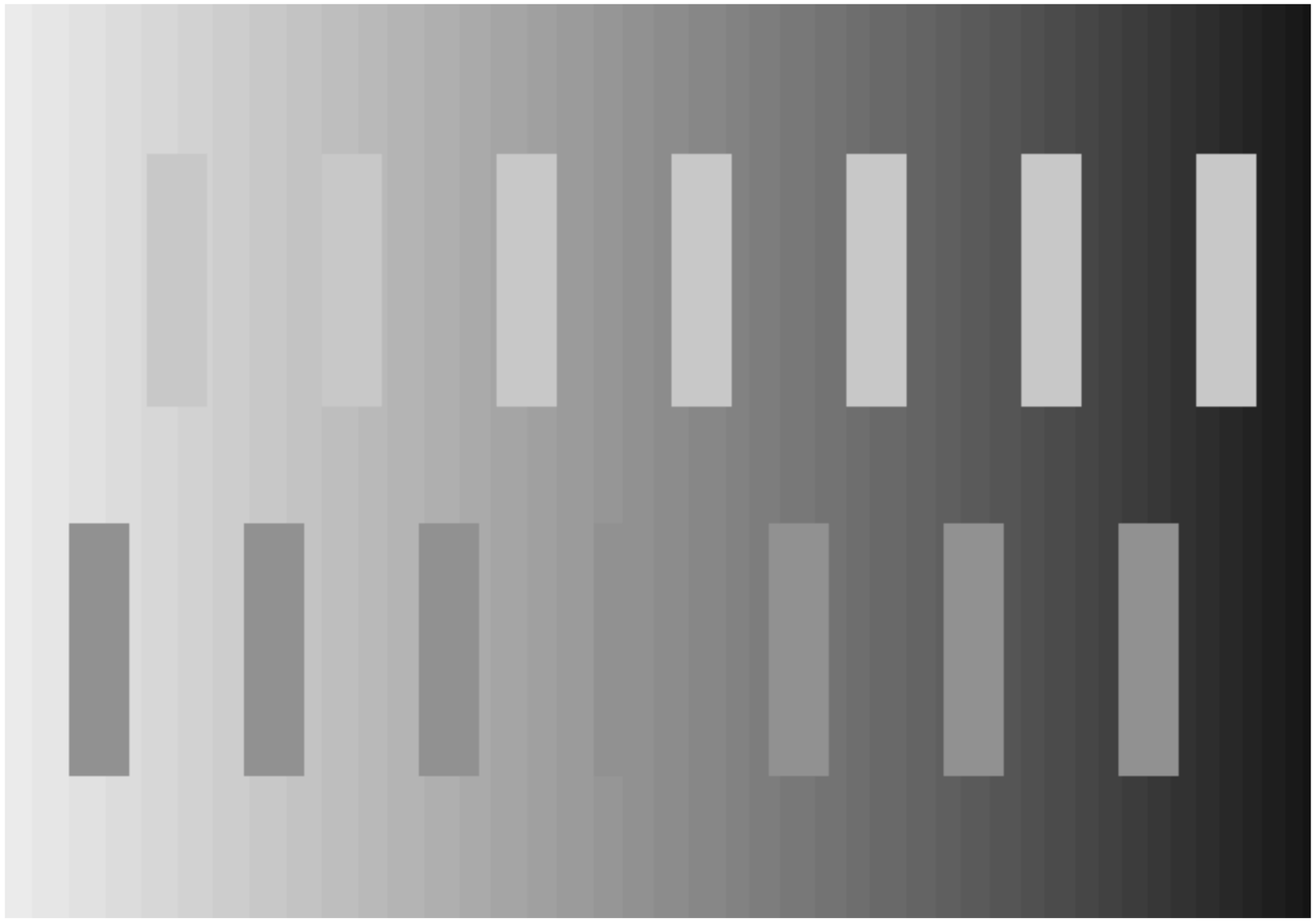
Subjective constancy: perceiving stimulus as the same object despite changes in size, shape or colour.





Source: Wikipedia

Subjective Constancy?



Source: Ilona Posner

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Assignment 5

A5 will be an individual reflection on how your feedback and participation helped your classmates.

Be prepared to volunteer as a user, as an expert or as a pilot participant.

You should keep detailed notes of any pilot testing, usability testing, heuristic evaluations, etc. you perform for other groups.

Questions?

This lecture is based on slides and content by:
ILONA POSNER
OLIVIER ST. CYR
Materials from:
Interaction Design: Beyond Human-Computer Interaction. Rogers, Sharp and Preece. 2011
idbook.com