



# Perceiving Perspective

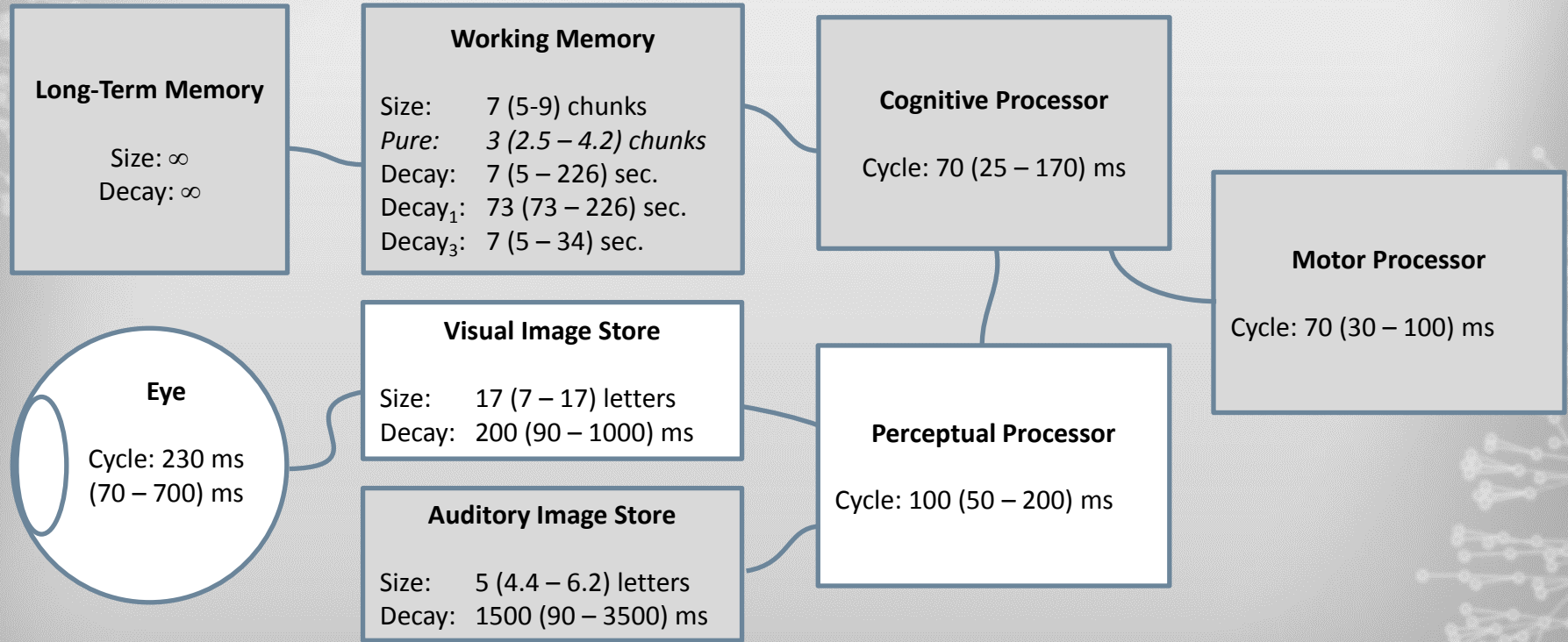
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# What Will We Learn?

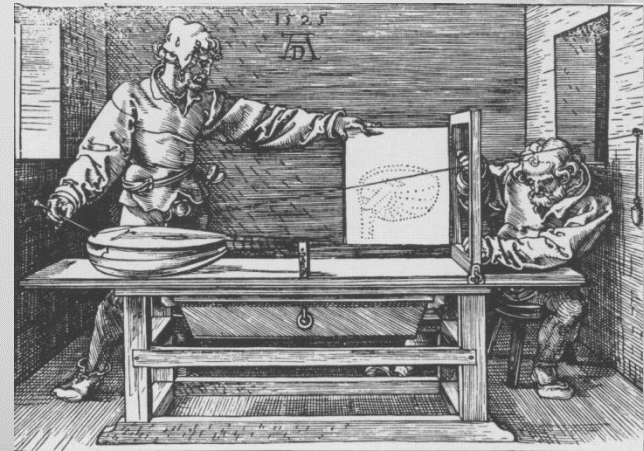
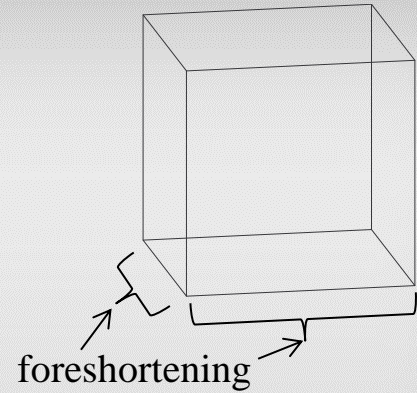
- How do we perceive a 3-D world from the 2-D image on our retina?
- How can this perception interfere with the visual presentation of 2-D data?
- How can we avoid the perception of 2-D data as 3-D data?

# The Model Human Processor

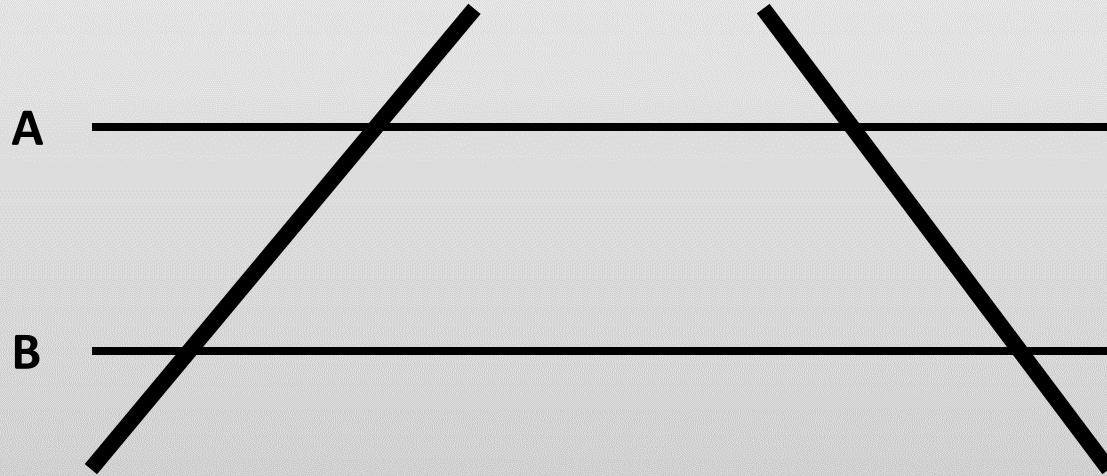


# Perspective

- **Foreshortening:** Objects at different depth along a similar line of sight project to nearby locations on the image plane
- **Linear Perspective:** Objects farther away appear smaller
- **Size Constancy:** Objects do not change size, so smaller objects must be farther away than larger objects



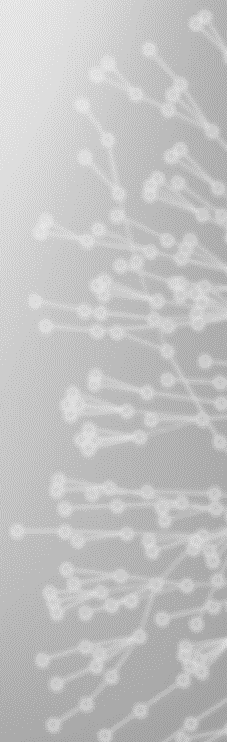
# Size Constancy

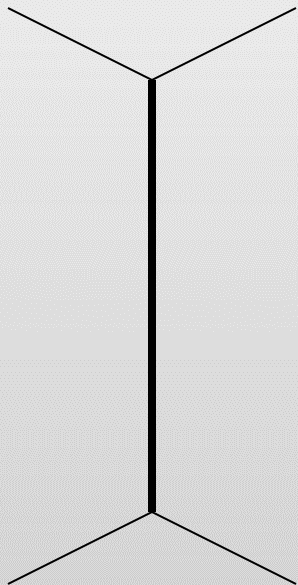
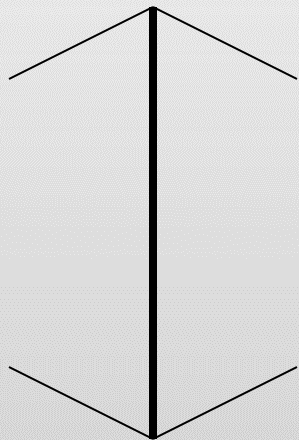


# Size Constancy

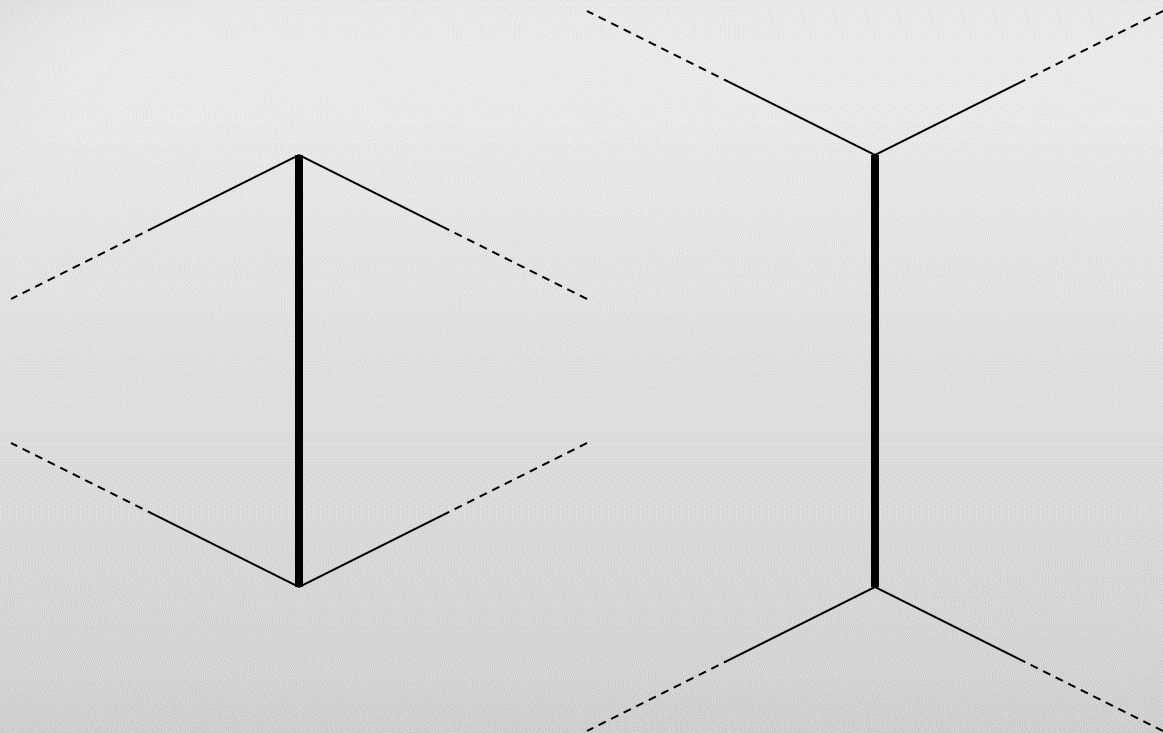
**A** 

**B** 

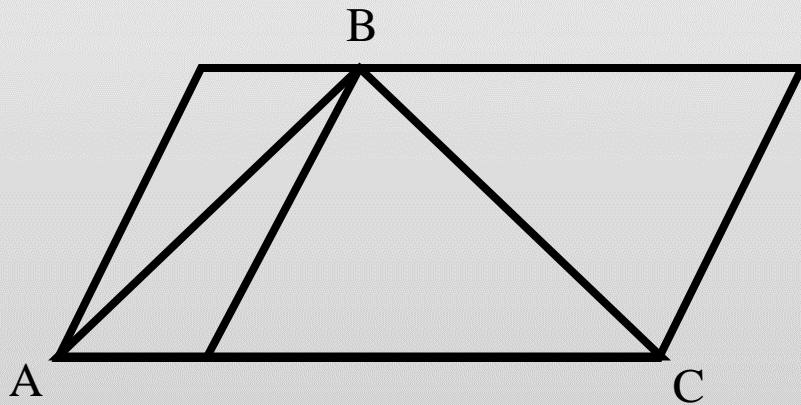




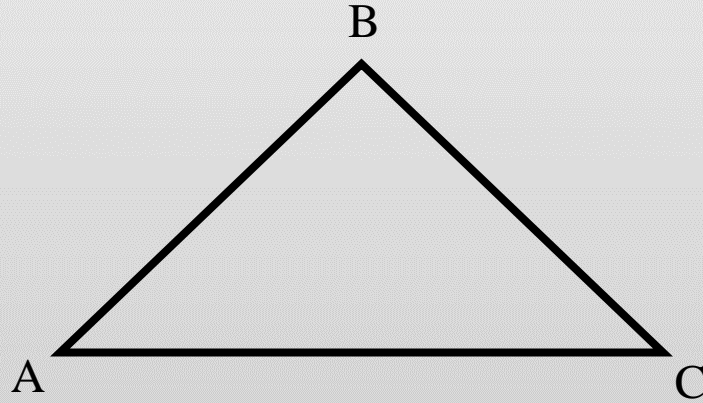




Which is Longer, AB or BC?

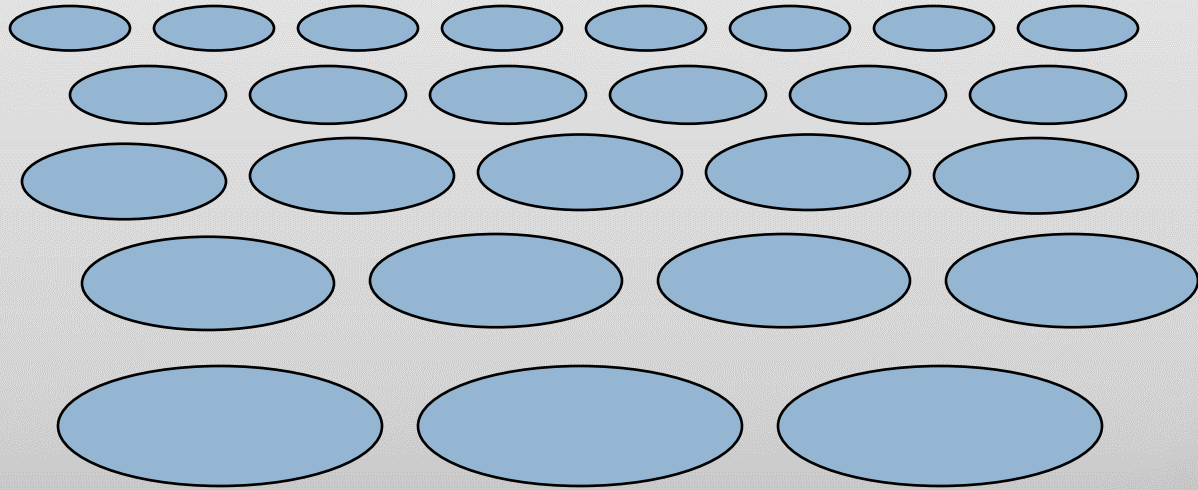


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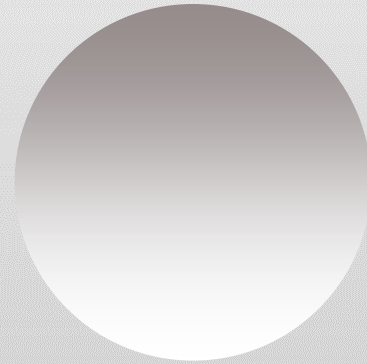
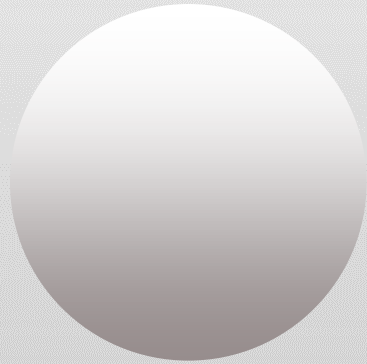


# Texture Constancy

- Expect objects to be same size in 3-D
- Differences must be due to perspective



# Lighting Assumptions



# What Did We Learn

- Our perception of size of an object is influenced by our perception of the distance to the object
- Avoid the incorporation of artificial 3-D elements in the presentation of 2-D data