⚠ CAUTION : Objects May Be Larger Than They Appear

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Abstract

Human visual perception relies heavily on external cues. Our concepts of size and distance can be confused if the visual cues are removed or systematically biased. We demonstrate these illusory effects though the construction of a specially designed piece of furniture (the so-called “Beuchet chair”). The Beuchet chair is composed of two separate and distinct parts: (1) the vertical “legs” and (2) an unattached seat. The seat is placed at a fixed distance from the observer while the legs of the chair are placed at an intermediate distance. When viewed from a predefined location, the legs and the seat are visually fused together and look like a normal everyday chair. However, any object placed on the seat of this specially constructed chair will appear to be much smaller than its actual (familiar) size. For example, a fully grown adult sitting on the seat of the Beuchet chair will appear to be the size of a very small child when viewed from the specially designated observation point. This perceptual distortion occurs because the visual system judges the person (or object) on the seat to be at the same distance as the legs of the chair. Consequently, the smaller retinal image of the seated object (due to its greater distance) is interpreted as representing a smaller-than-actual size. This finding confirms *Emmert’s Law*: namely, perceived size = perceived distance X retinal image size. The Beuchet chair illusion is compelling but can be extinguished readily by having the observer move to another position (breaking the perceived fusion of the “unified” chair and re-establishing valid perceived distance cues). An online illustration of the illusion can be viewed at http://sunburst.usd.edu/~schieber/psyc301/BeuchetChair.html

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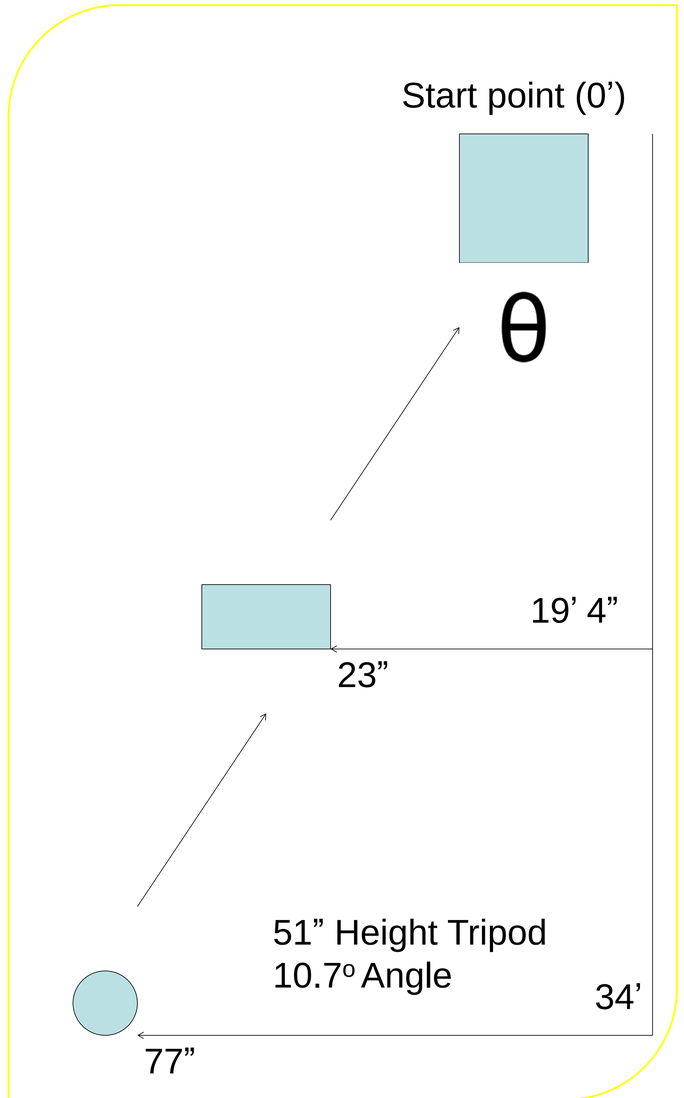
Concept:

The initial scale model (shown here) was an excellent learning experience, but has many flaws. The first error was with the front portion having an actual chair, making the visual cues more difficult to line up. We eliminated the seating portion and used just the legs. The second problem that we encountered was the back section. The legs were also making the visual cues more difficult to line up. We decided to also eliminate the back legs and simply utilize the “seating” portion.

Design



Materials

Miscellaneous Lumber, ranging in size from 2”x2” and 2”x4”. Wood screws, ranging in size. Latex paint, Vermillion red, Matte Grey, Black.

Discussion

It is interesting to see how our vision is so effected by cues. It is also interesting how size constancy can be distorted by changes in the environment. Beuchet chair demonstrates our vision systems are not always as reliable as we think they are.