

CS24 Quick Quiz

- Perception
- Raster Graphics

1.



Giorgio de Chirico, *Gare Montparnasse*, 1914

Explain what visual cues produce a sense of depth in this painting.

Any 3 (or more) from the list below were OK:

- Atmospheric or aerial perspective
- Interposition (overlapping)
- Perspective convergence of parallel lines
- Relative height
- Relative size
- Horizon line
- Shadows
- Shape from shading
- Texture gradient

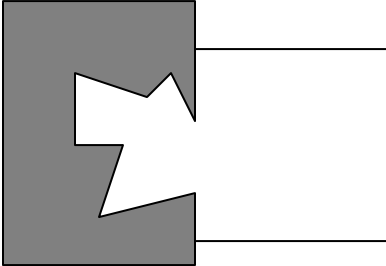
How does the artist's use of these clues give it a sense not just of depth but of "surrealism"?

Any 1 (or more) from the list below were OK.

Note that these are just perceptual cues listed below, one could also consider the choice of the big bunch of bananas in the foreground, the role of the clock, the empty station with just a single distant figure in the scene, and the choice of colors.

- Parallel lines that do not converge (ramp on right)
- Multiple converging points for parallel lines
- Train appears extremely far away from rest of station
- Relative size of people make them seem bizarrely distant or tiny
- Sharp outlines on shadows make them seem almost like objects themselves
- No use of atmospheric perspective in colors of, for instance, the orange path

2.

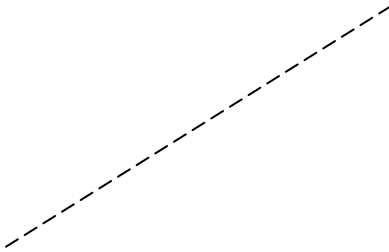


Explain why it appears that a rectangle is underneath the gray shape. Try to give the perceptual rule (a la Hoffman) as well the name of the depth cue.

The Hoffman rule was “Rule7: Where possible, interpret a T-junction in an image as a point where the full rim conceals itself: the cap conceals the stem.”p39 This was also covered in slides 17 and 18 of the second perception lecture. The T-junction rules helps to explain why interposition (overlapping) is an effective depth cue.

Anything similar to these facts/arguments was OK. Partial credit given for pointing out that we might see a rectangle because it's a familiar shape.

3.

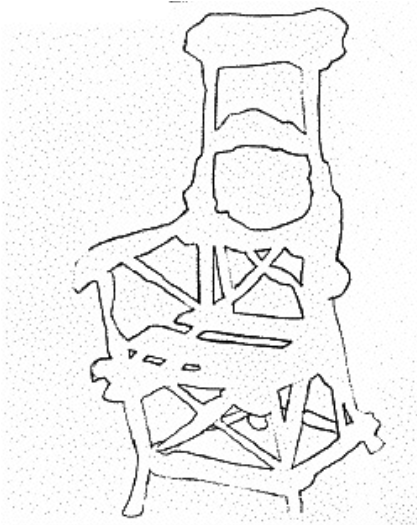


Explain why this looks like a “dashed line” rather than a bunch of little lines all in a row.

The idea here is that, as in Rule 12, “If two visual structures have a non-accidental relationship, group them and assign them to a common origin.”p.60. Alignment of lines (in a row, in parallel, etc.) is interpreted as non-accidental because such 2D organizations usually reflect 3D structural properties. This phenomenon is an important part of Gestalt theory too, in which we perceives wholes (e.g., the dashed line) rather than just parts (little line segments all lined up in a row for no reason).

Anything similar to these facts/arguments was OK.

4.



Why would drawing “negative space” help you depict a scene more accurately?

Most of our perceptual process is not done consciously (thank goodness) and the results of processing in the eye and brain that reach conscious are highly dependent on whether we feel the need to pay attention to them and how we categorize them. Once we've identified something as a chair, for instance, we rarely stop to consider more aspects of its detail. In fact, it can be difficult to do so, a fact that makes drawing more challenging than one might initially think.

Drawing the negative space keeps one from dismissing features of a known object by forcing attention to meaningless (or rather hard-to-categorize and name) shapes.

5.



Is an image pixel a little square? If not, what is it?

An image pixel is non-dimensional (zero-dimensional) point sample, numerically describing the color (and often transparency) of an image at a point in a two-dimensional coordinate system.

6.

	0	1	2	3	4
0	0.04	0.04	0.04	0.04	0.04
1	0.04	0.04	0.04	0.04	0.04
2	0.04	0.04	0.04	0.04	0.04
3	0.04	0.04	0.04	0.04	0.04
4	0.04	0.04	0.04	0.04	0.04

What would this filter kernel do to an image?

This filter weighs each pixel's neighbors equally with the pixel in question and thus averages out their values, blurring the image.

Bonus: What would the effect be of adding more rows and columns with this same weighting?

Broadening the filter kernel will create even more blurring.

Also, the area under a filter needs to be 1 to keep the same brightness as the pre-filtered image. If you extend the kernel base without lowering the weightings, the image will get lighter. (This part was only for techies!)