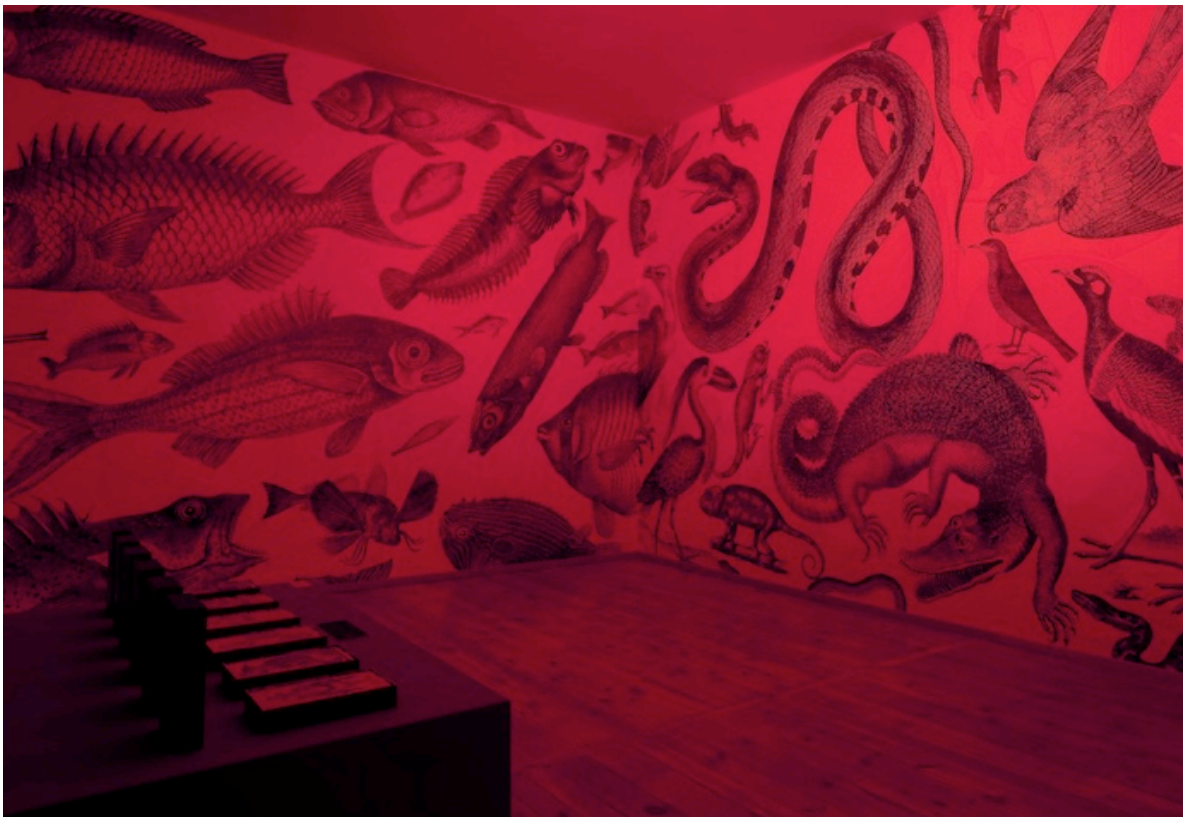


Figure 1. Absorption spectra of the three human cones, S, M & L, plus the rods (dotted blue line).

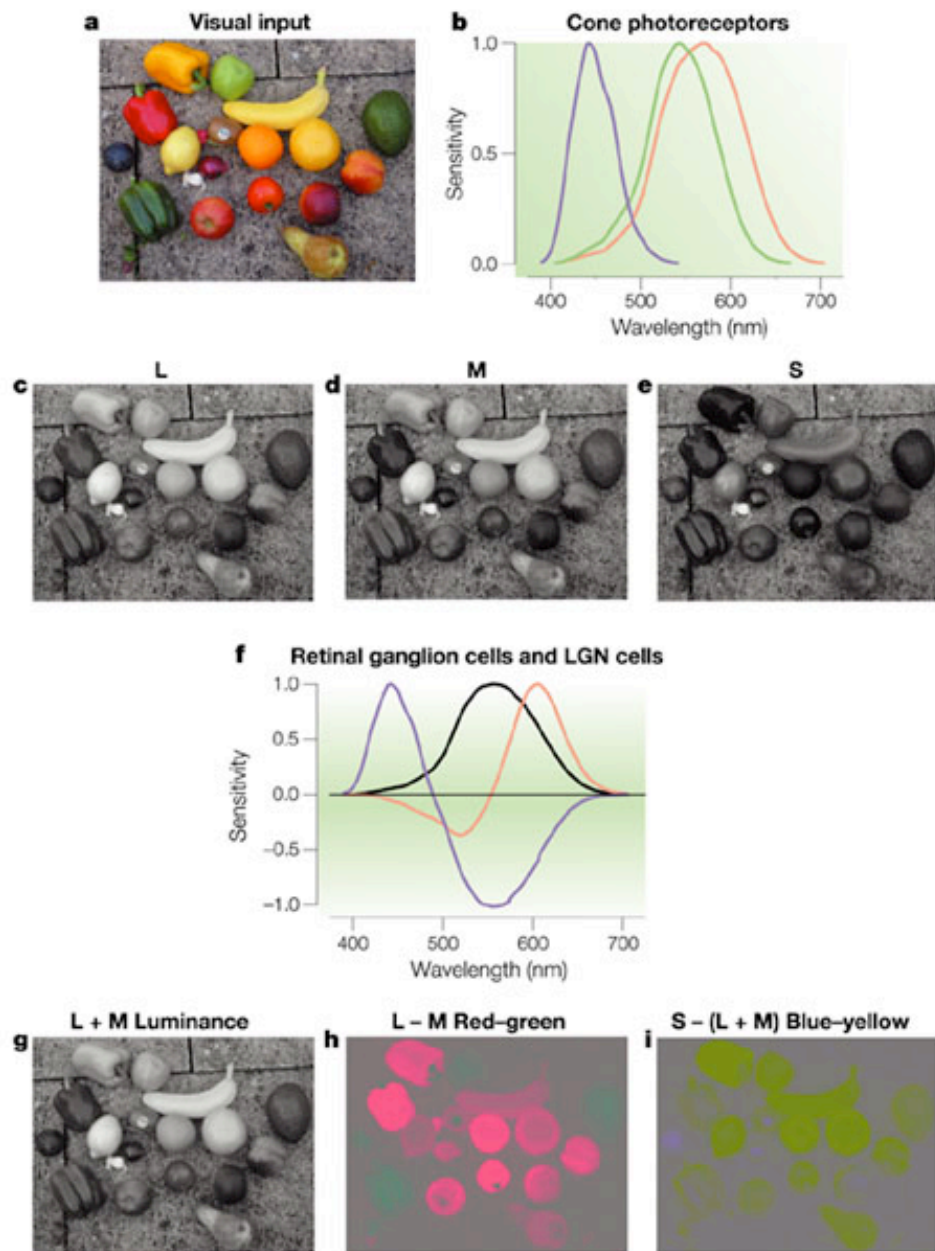


Figures 2 (a) and (b). Figure 2a shows the RGB wallpaper, with figures rendered in the standard three colours of printer's ink, magenta, cyan and yellow. Figure 2b shows the same walls illuminated by narrow-band red light. For further photographs, see <http://www.carnovsky.com>.





Figures 3 (a) and (b). Figure 3a shows the RGB wallpaper illuminated by narrow-band green light. Note the high visibility of the red figures (which appear black) and the low visibility of the yellow figures (which appear yellow) and blue figures (which appear gray). In Figure 3(b), the narrow-band blue light highlights the yellow figures, such as the cockroach, which now appear black.



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Figure 4. Figures (c), (d) and (e) illustrate the different measures of luminance, for the L, M, and S cones that would result from a single colour photograph of common fruits and vegetables. Figure g shows the luminance image for the L+M luminance channel of the same scene. Figures (h) and (i) illustrate the reaction of chromatic ganglion and LGN cells. In (h) magenta signals a positive response and green signals a negative response of an L-M or red-green cell. In (i), yellow signals negative response of the S-(L+M) channel. Grey signals a lack of response in both images. Note that, in (i), there is no positive response shown because none of the fruits or vegetables are predominantly blue (Gegenfurtner, 2003).





Figures 5(a) and 5(b). Figure 5(a) above is the ‘positive’ rendition of the wallpaper, with coloured figures and fauna against a white background; Figure 5(b) is the ‘negative’ rendition, with fauna in white and animals in colour on a black background.



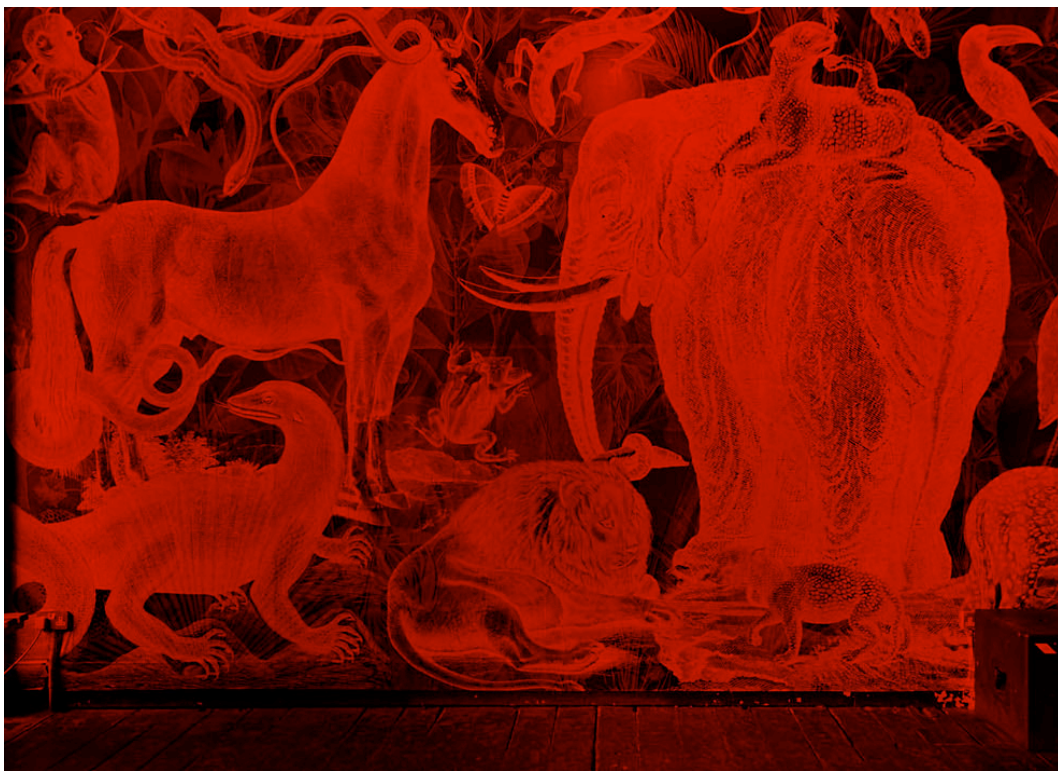


Figure 6(a) and 6(b). In 6(a), the positive scene is shown under red illumination, which yields black figures on a red background. In 6(b) the negative scene is shown under red illumination, which yields red figures on a black background.





Figure 7 (a) A monochrome image of the RGB wallpaper. Note that the three inks used to render each of the colours, cyan, magenta and yellow, appear roughly in intensity. In Fig 7(b), the intensities of the figures is now variable, some lighter and some darker.

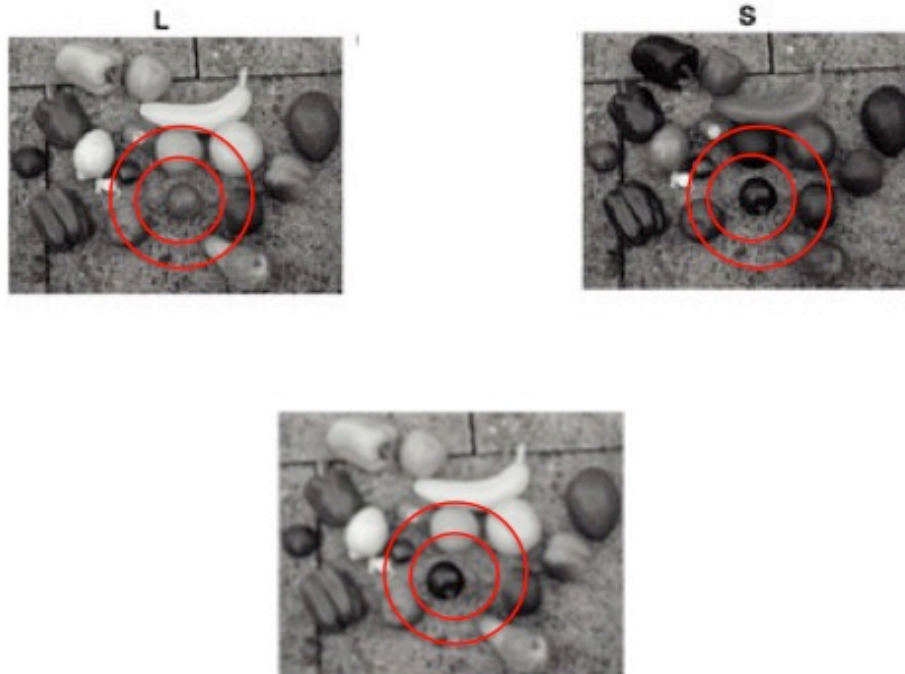


Figure 8. A fictitious L-S cell. Top: These two show the visual fields of center-surround luminance cells that would result from a single cell, L or S. The figure below illustrates the nature of a chromatic cell, composed of the L surround and L-S center-surround cell that would result from combining the surround of the L cell and the center of the S cell.



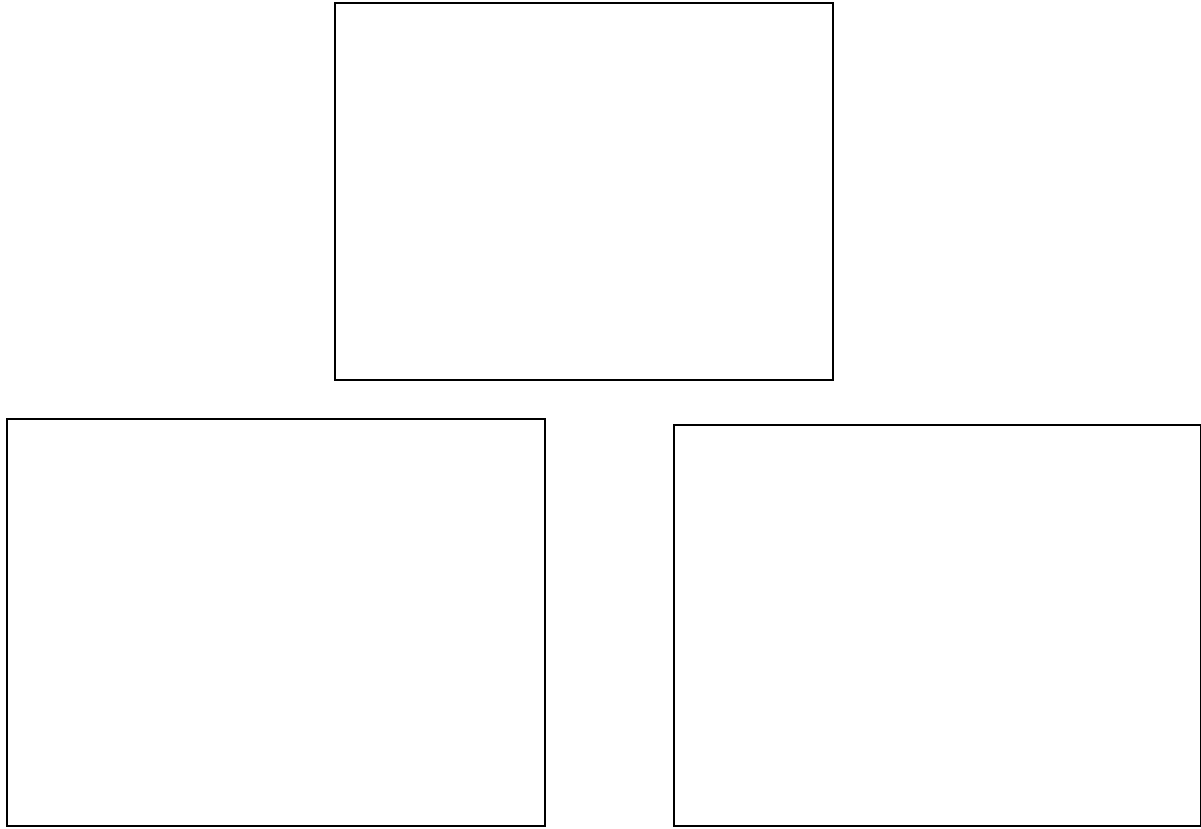


Figure 9. These photographs illustrate the separation of a single image (full colour, top middle) into two contributing components of light to the image, the Luminance Image and the Spectral Image.

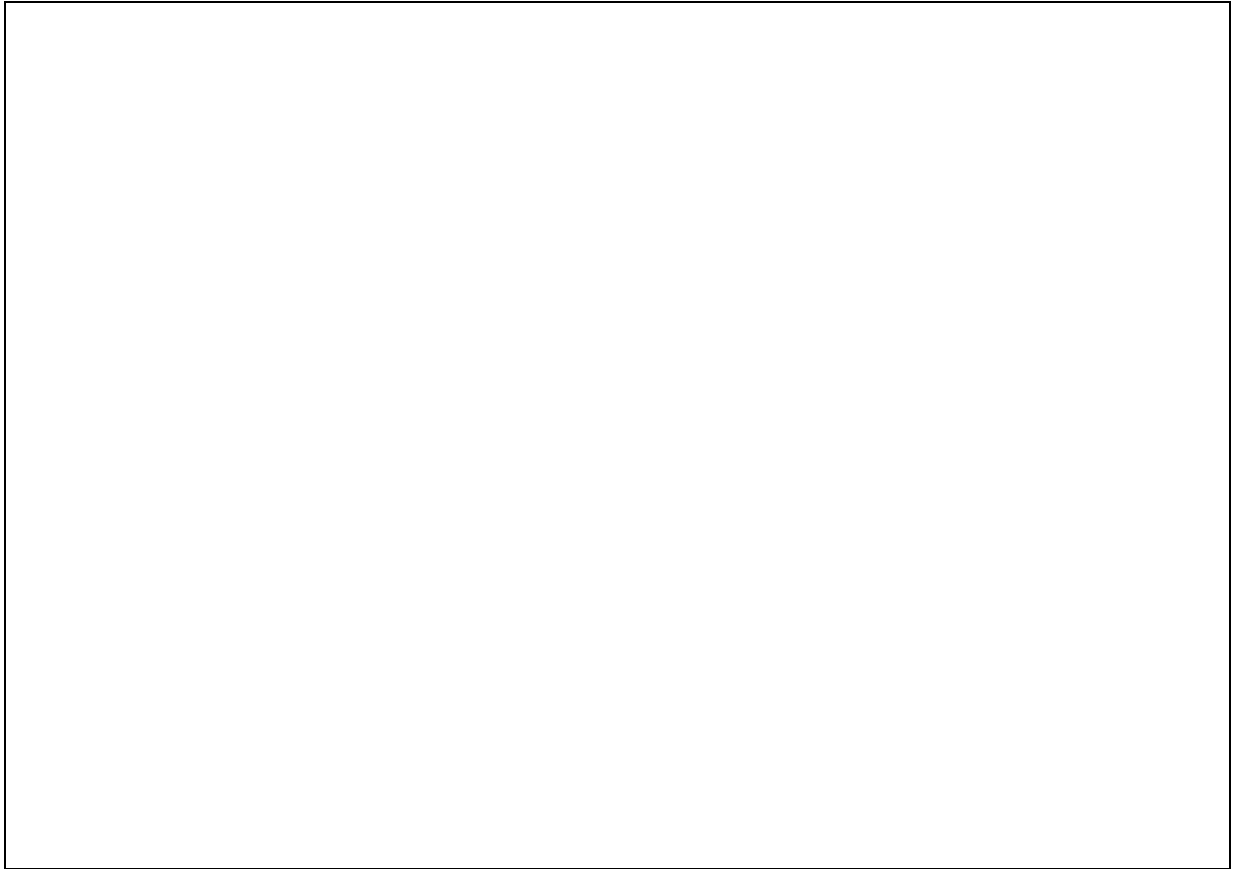
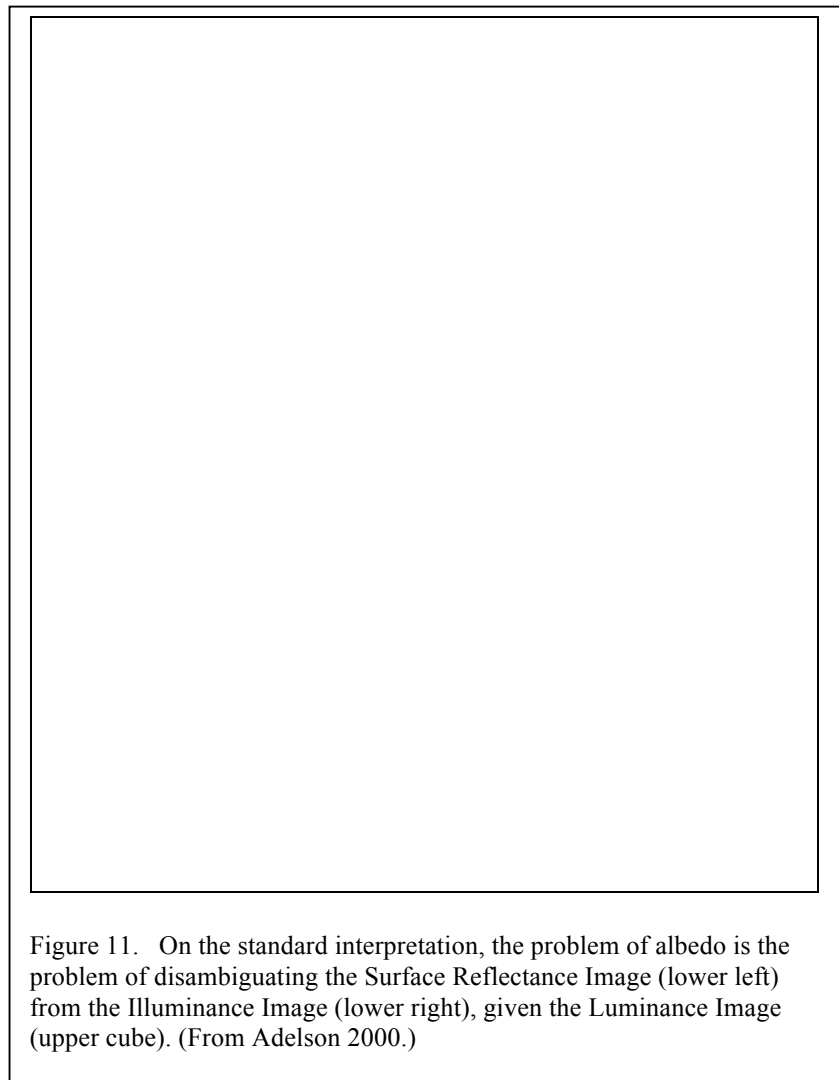


Figure 10. (a.) Original colour or 'input' image. (b.) Luminance Image or photon catch of the S, M, and L cones (c.) Red-Green image of the response of the L-M channel. (c). Edges derived from the Luminance Image in (a). (d). Edges derived from the L-M channel in (c). (From Thorsten & Gegenfurtner 2009.)





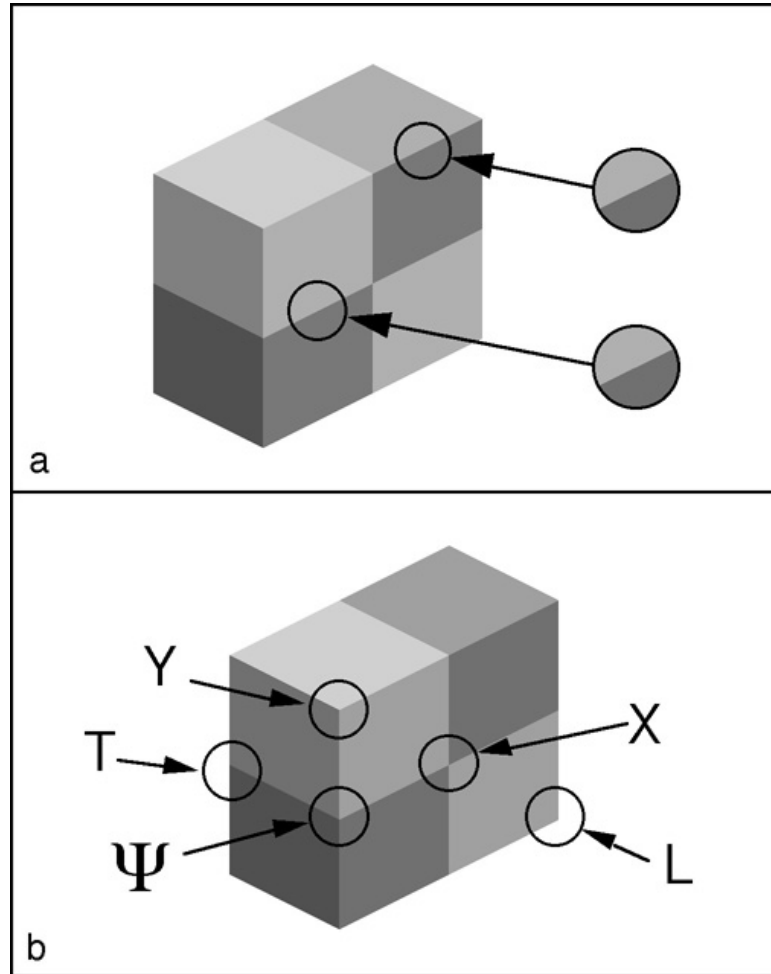


Figure 12. (a) In this figure, an identical contrast is caused by a difference in illuminance (above) and (below) by a difference in albedo or surface reflectance. Figure 12(b) illustrates a number of different junction types that are typical of changes in surface reflectance and illumination. (From Adelson 2000.)

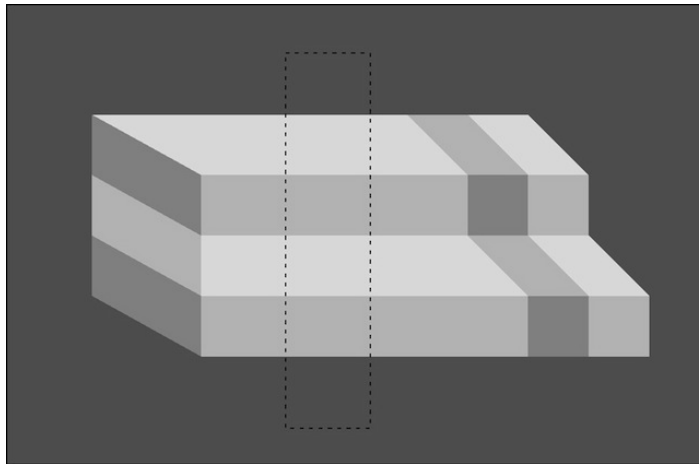


Figure 13. This illustration show how two quite different configurations of the world, on the one hand, a set of stairs with the same surface reflectance, and on the other hand, a solid figure with differences in surface reflectance, nonetheless can cause an identical visual image (in dotted rectangle). Context is needed to resolve the ambiguity. (From Adelson 2000.)

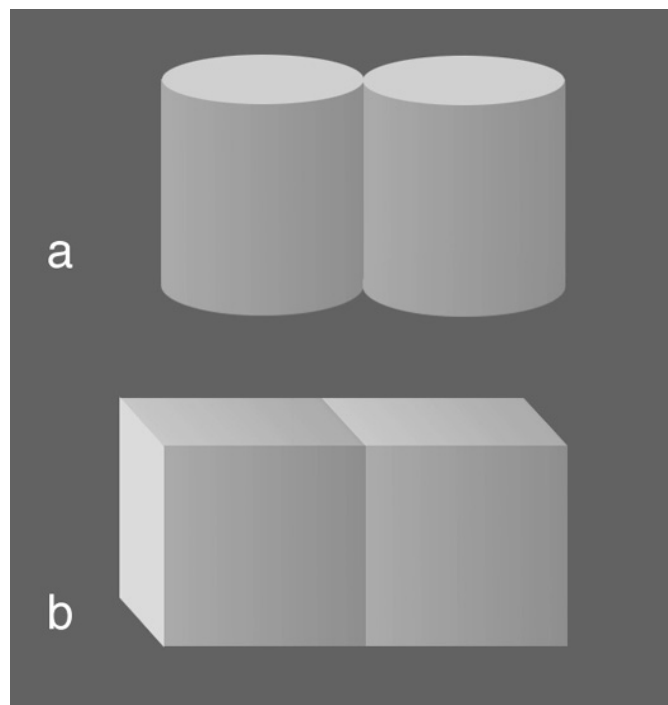


Figure 14. Although (a) depicts two cylinders and (b) shows two adjacent cubes of different albedo (surface reflectance) both (a) and (b) are identical. (From Knill and Kersten, 1991.)

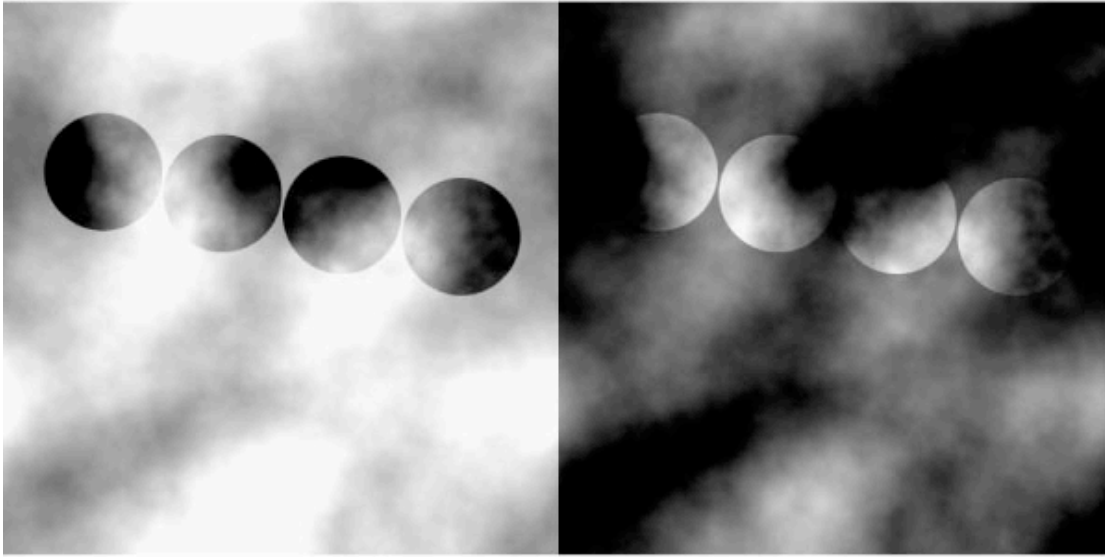
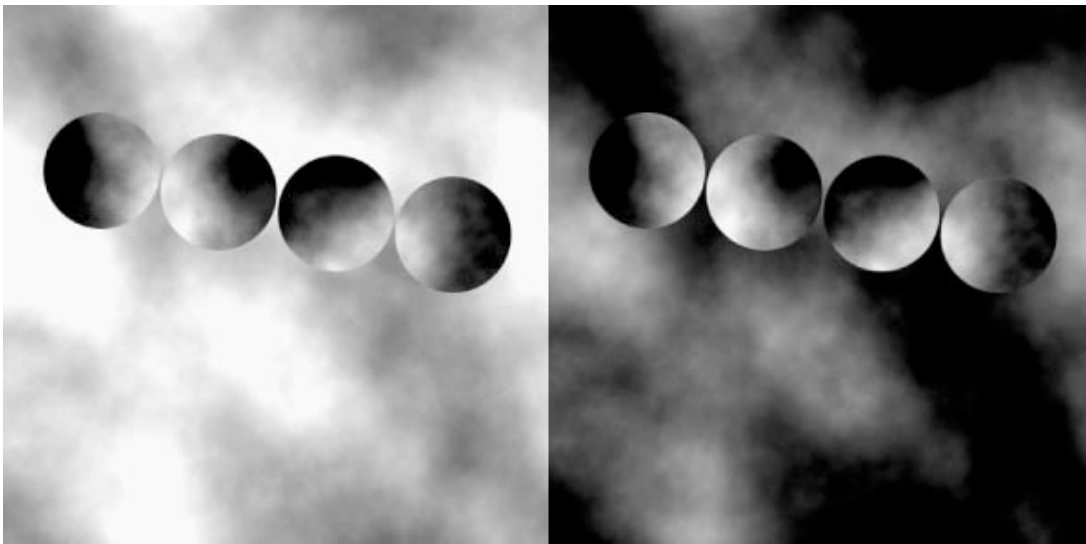
**a****b**

Figure 15. In (a) identical disks on the left and right appear as dark disks obscured by dark atmosphere, while on the left, the disks appear as light disks occluded by dark clouds. Below in (b) the disks have been rotated, thereby destroying the contrast relations with the background. Here, the disks look identical but the illusions of atmosphere are destroyed. (From Andersen and Winawer 2003)



