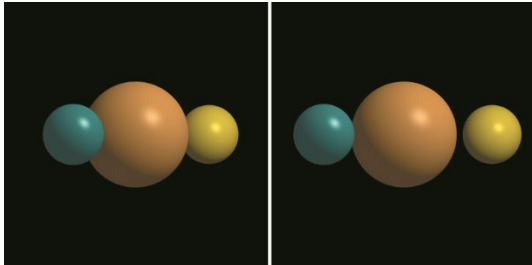


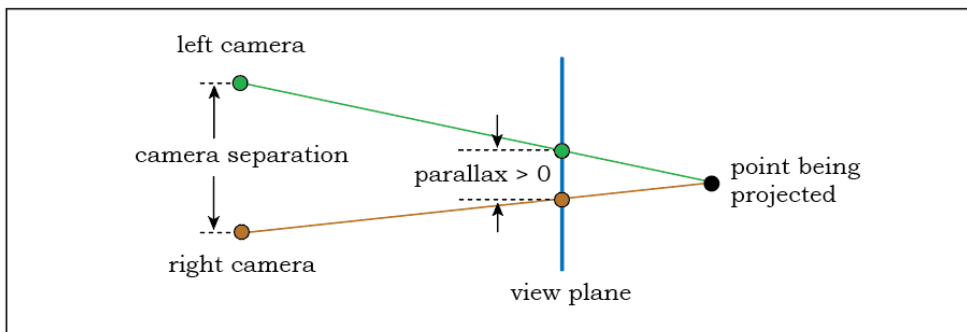
Stereo Images



A stereoscopic pair consists of a pair of images, one for the left eye and one for the right eye. These images are rendered using binocular disparity, and when viewed simultaneously, the human visual cortex will fuse them into one image and perceive depth.

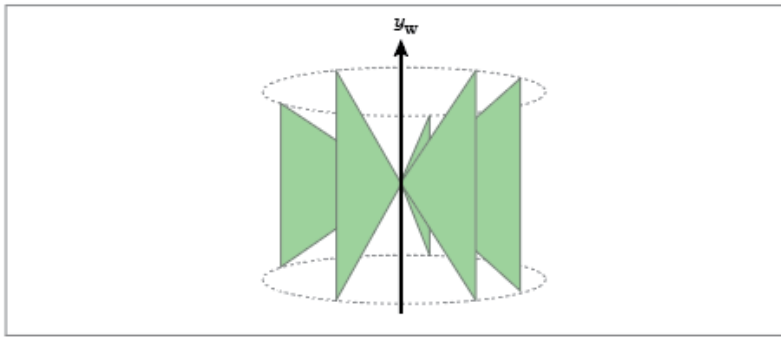
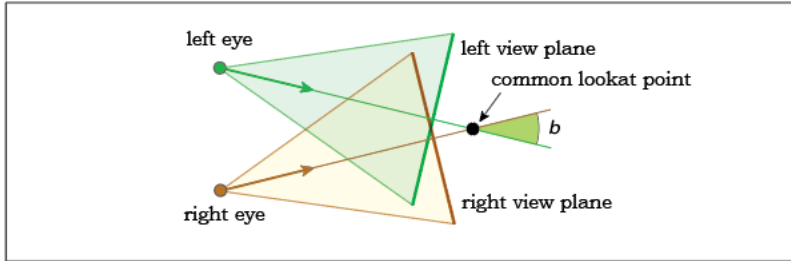
1. Parallax

To generate stereo pairs in computer graphics, we simulate left and right cameras. When a point is projected onto a view plane, the left-eye projection will be displaced from the right-eye projection in the direction of a line joining the cameras...this is called parallax.



- Under what conditions will a point exhibit 0 parallax?
- Under what conditions will a point exhibit negative parallax?
What are the bounds on the magnitude of negative parallax?
- Under what conditions will a point exhibit positive parallax?
What are the bounds on the magnitude of positive parallax?

2. One way to generate stereo pairs is to set up the simulated camera with a common look-at point and symmetric view volumes. Now suppose we view a triangle located at the look-at point. The only difference between the two stereo images will be that the triangle will appear to be rotated through the angle b . What will be the difference between the two images? Is this likely to impact the quality of a VR experience?



3. An alternative camera arrangement involves asymmetric viewing volumes and two look-at points. To set up the camera, we can derive a value for the displacement x based on the distance r and the angle b ? (warning: trigonometry involved)

