## **Binocular disparity**

Binocular disparity refers to the difference in image location of an object seen by the left and right eyes, resulting from the eyes' horizontal separation (parallax). The brain uses binocular disparity to extract depth information from the two-dimensional retinal images in stereopsis.

Binocular disparity occurs because of the difference between the retinal images of our eyes and how the differing signals influence the visual image perceived by our brain. Because we have two eyes, two slightly different signals are sent to the brain due to the slight discrepancies in the retinal image. You can see how binocular disparity occurs.

The closer an object is to your eyes the more evident the disparity becomes. Hold a pencil arms length away from your face. The pencil looks normal and is sharp. Then slowly move the pencil closer to your face. As you get closer the pencil will become more blurry. This happens because of binocular disparity.

The visual cortex in the brain uses a process called stereopsis to correct binocular disparity. The two differing signals are combined by the visual cortex and a perception of depth occurs. Depth perception begins to occur around four months of age by which time the visual cortex has developed.

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