

Lecture 6: Projections

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1 Viewing Systems

In real life we pick up objects, position them and then view them. In computer graphics objects are positioned in a fixed frame. The viewer moves to the appropriate position in order to achieve the desired view.

2 Perspective Projections

We assume that there exists a *Centre of Projection* (COP). Objects' distances from the **COP** cause the objects to appear larger or smaller on the intersecting viewplane.

Lines that are not parallel to the viewplane converge to a vanishing point. The *Principal Vanishing Point* exists for lines that are parallel to the principal axis. This can be clearly seen in the perspective projection of a cube, edges which are parallel to one another appear to converge.

3 Parallel/Orthographic Projections

Here the COP is **always** at infinity. This means that the viewplane is aligned with the axes and the *Direction of Projection* (DOP)