

Proposition

If $\mathcal{B}, \mathcal{D}, \mathcal{E}$ are three bases of a vector space V then:

- 1) $P_{\mathcal{B} \leftarrow \mathcal{D}} = (P_{\mathcal{D} \leftarrow \mathcal{B}})^{-1}$
- 2) $P_{\mathcal{E} \leftarrow \mathcal{B}} = P_{\mathcal{E} \leftarrow \mathcal{D}} \cdot P_{\mathcal{D} \leftarrow \mathcal{B}}$

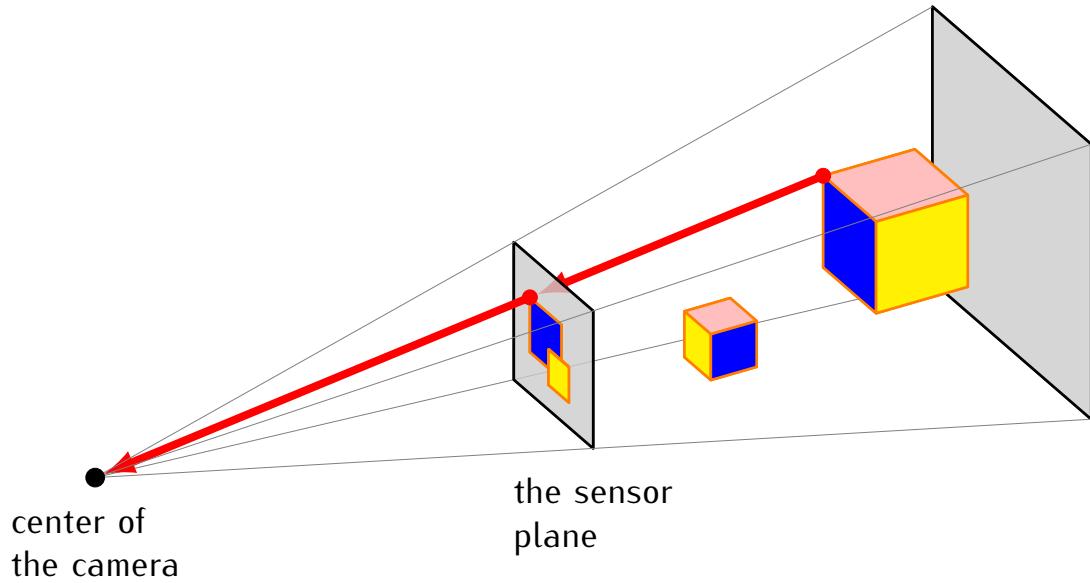
What we want:



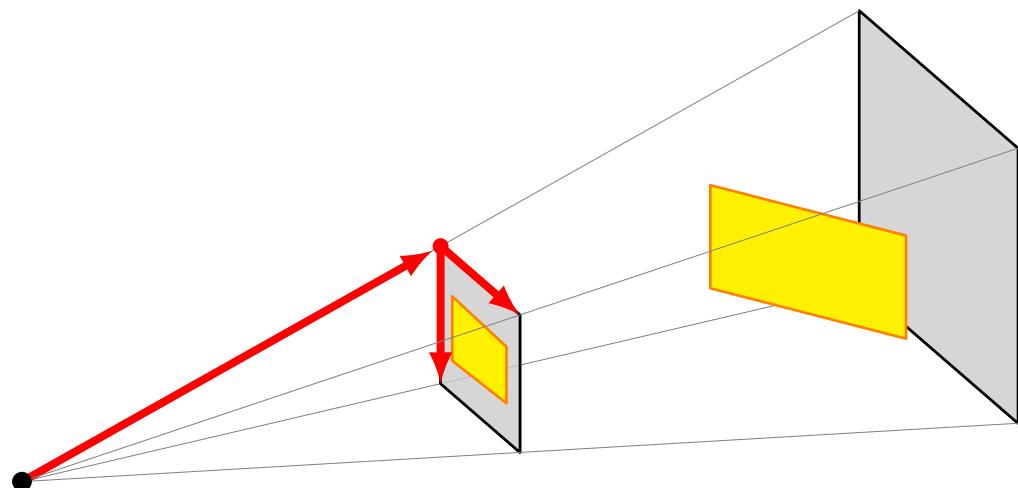
What we have:

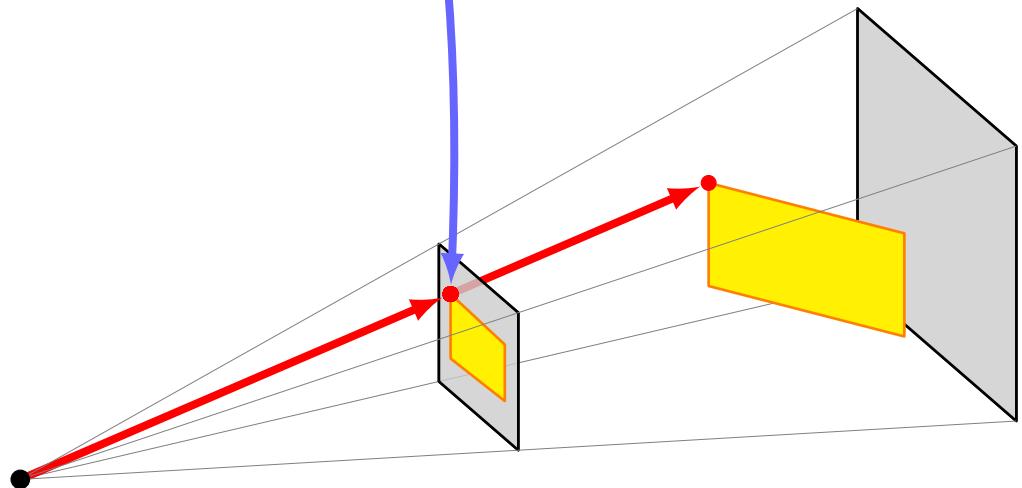


Image formation in a camera

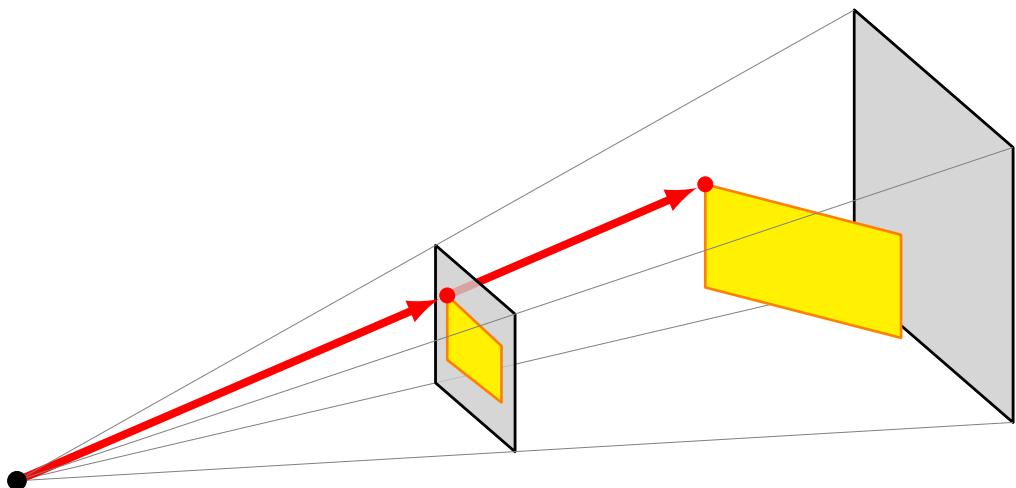
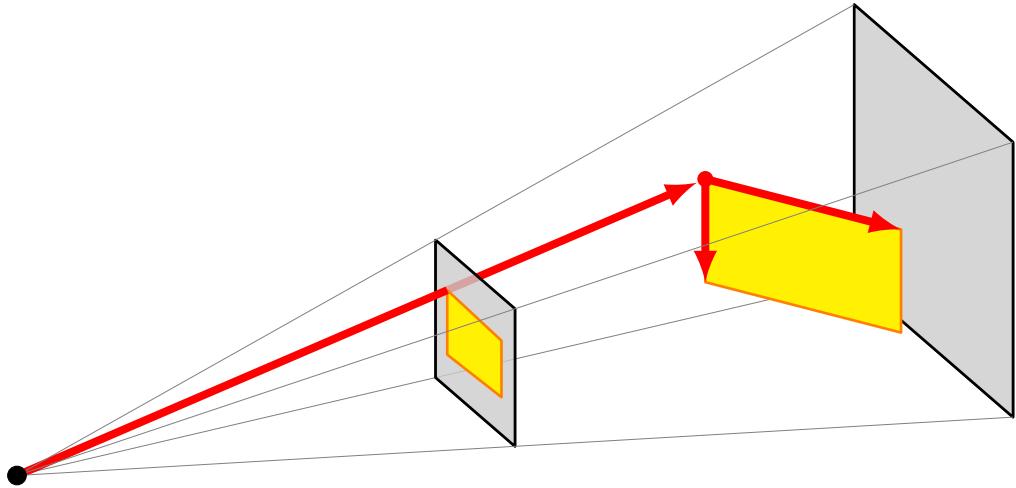


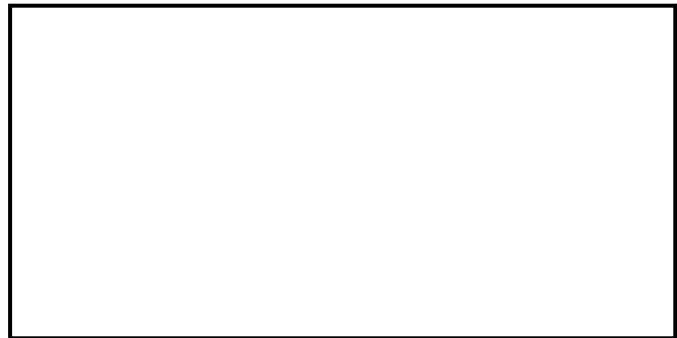
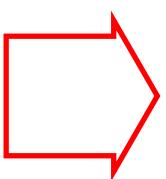
The camera coordinate system \mathcal{C}





The mural coordinate system \mathcal{M}





From mural coordinates to camera coordinates

$$P_{C \leftarrow M} = [[\mathbf{m}_1]_C \quad [\mathbf{m}_2]_C \quad [\mathbf{m}_3]_C]$$

