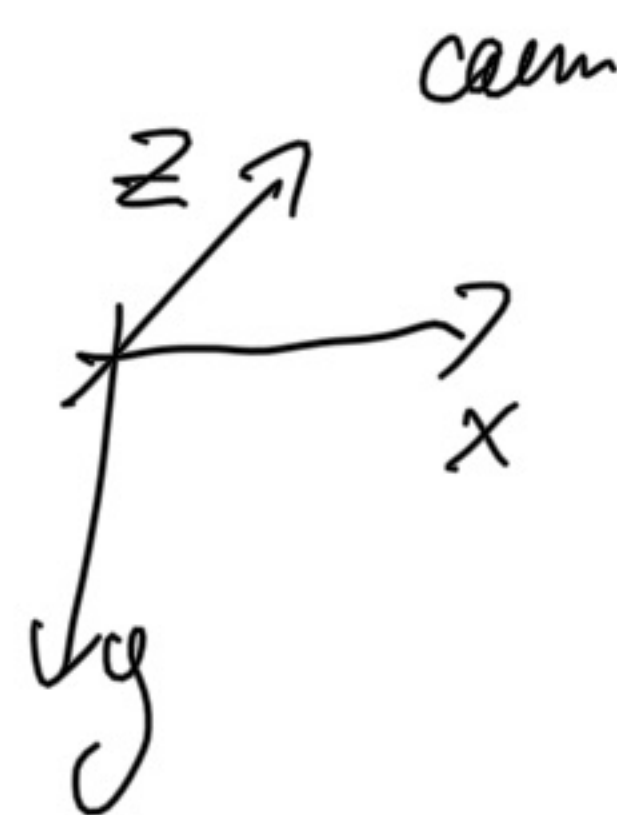
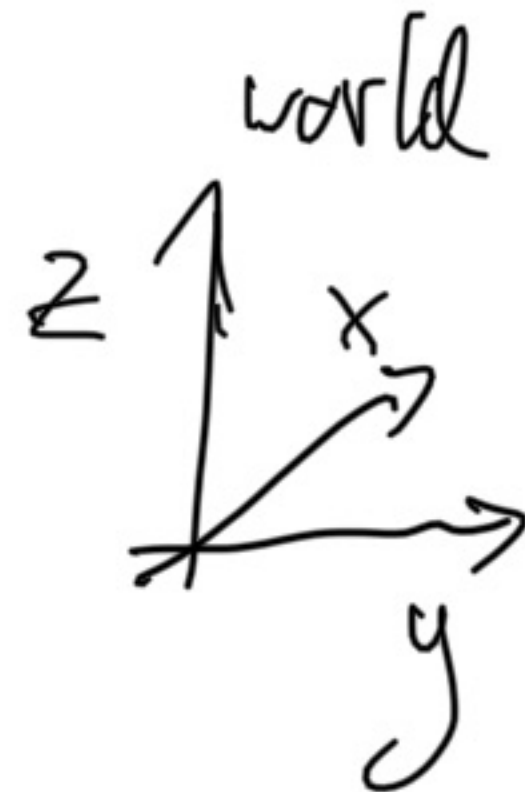
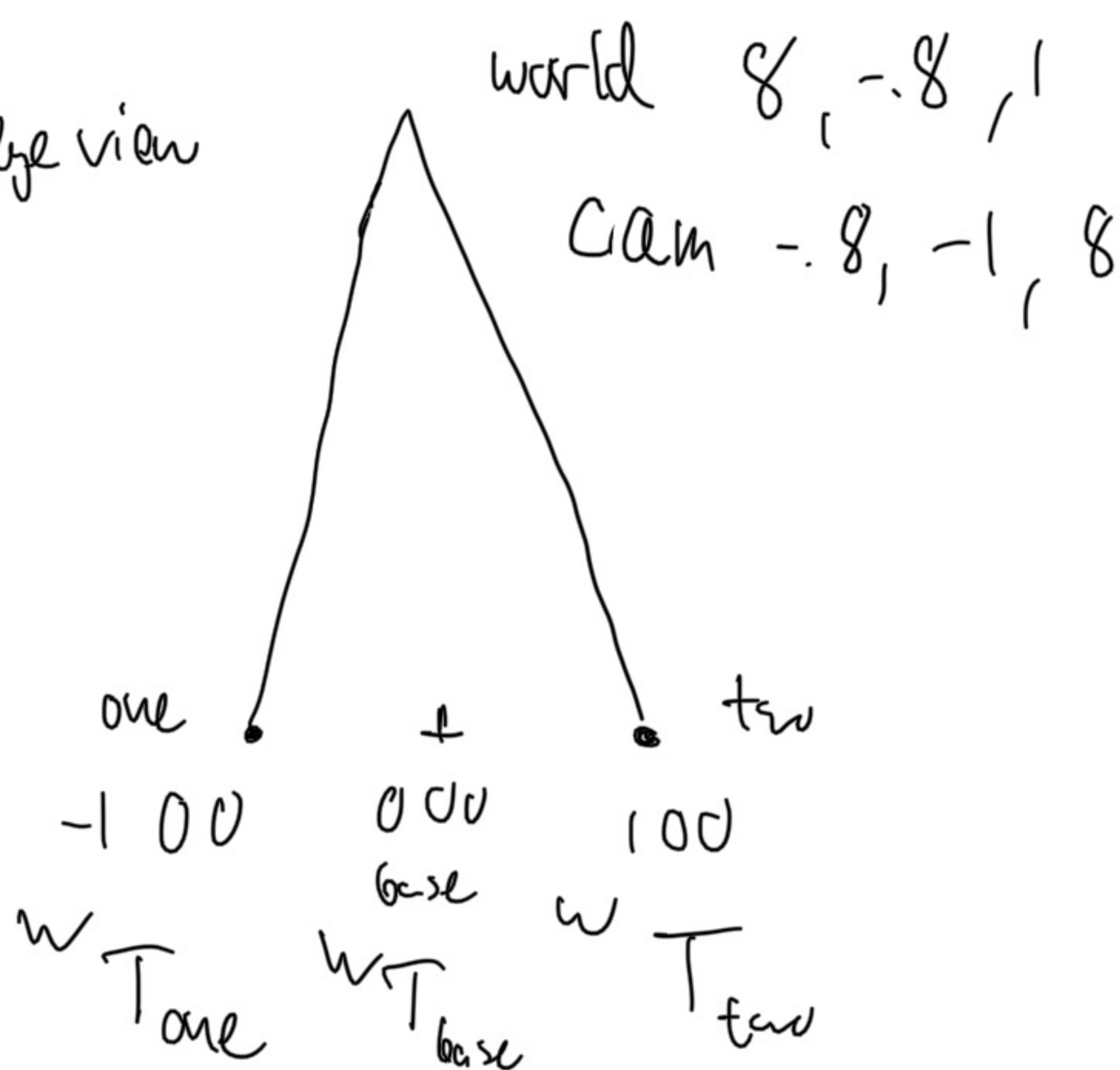


Depth estimation zoom in

(see intro to slam pg. 170 ch. 6.5 triangulation)

bird's eye view



$${}^2T_1 = \begin{pmatrix} I & \begin{smallmatrix} -2 \\ 0 \\ 0 \end{smallmatrix} \\ 0 & 0 \end{pmatrix}$$

$$R = I \quad t = \begin{pmatrix} -2 \\ 0 \\ 0 \end{pmatrix}$$

OK

$$s_2 x_2 = s_1 R x_1 + t$$

$$\begin{pmatrix} -1.8 \\ -1 \\ 8 \end{pmatrix} = \begin{pmatrix} 0.2 \\ -1 \\ 8 \end{pmatrix} + \begin{pmatrix} -2 \\ 0 \\ 0 \end{pmatrix}$$

$s_1 x_1$

Now, left multiply both sides by $x_2^T = \begin{bmatrix} 0 & -8 & -1 \\ 8 & 0 & 1.8 \\ 1 & -1.8 & 0 \end{bmatrix}$

$$s_2 x_2^T x_2 = s_1 x_2^T x_1 + x_2^T t$$

$$1 = \begin{pmatrix} 0 & -8 & -1 \\ 8 & 0 & 1.8 \\ 1 & -1.8 & 0 \end{pmatrix} \begin{pmatrix} \frac{1}{5} \\ -1 \\ 8 \end{pmatrix} = \begin{pmatrix} 0 \\ \frac{8}{5} + \frac{18}{10} \cdot 8 \\ \frac{1}{5} + 1.8 \end{pmatrix} = \begin{pmatrix} 0 \\ 16 \\ 2 \end{pmatrix}$$

$$8 \left(\frac{1}{5} + 1.8 \right) = 8 \cdot 2 = 16$$

$$\begin{pmatrix} 0 & -8 & -1 \\ 8 & 0 & 1.8 \\ 1 & -1.8 & 0 \end{pmatrix} \begin{pmatrix} -2 \\ 0 \\ 0 \end{pmatrix} = \begin{pmatrix} 0 \\ -16 \\ -2 \end{pmatrix}$$