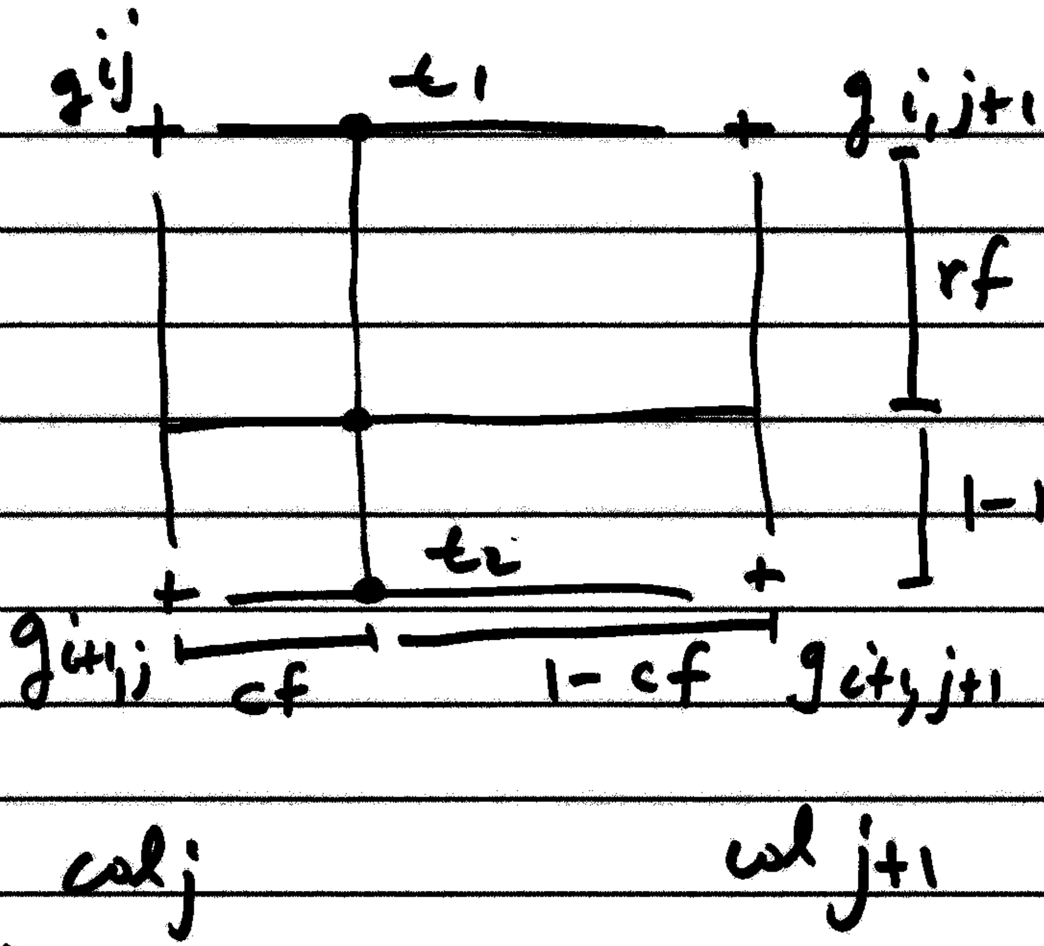
Bilinear Interpolation



row i

row $i+1$

$rf = r - \text{trunc}(r)$

$cf = c - \text{trunc}(c)$

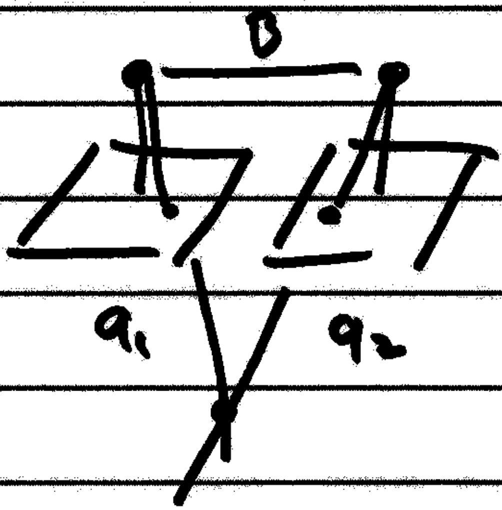
$$t_1 = g_{i,j+1} \cdot cf + g_{i,j} \cdot (1-cf)$$

$$t_2 = g_{i+1,j+1} \cdot cf + g_{i+1,j}(1-cf)$$

<u>interp</u> $= t2 \cdot rf + t_1(1-rf)$

<u>0 – 255</u>

Alternative to Coplanarity Equations



$$a : \begin{bmatrix} a_x \\ a_y \\ a_z \end{bmatrix} \qquad b : \begin{bmatrix} b_x \\ b_y \\ b_z \end{bmatrix}$$

$$b \cdot (a_1 \times a_2) = 0$$

$$K : \begin{bmatrix} 0 & -b_z & b_y \\ b_z & 0 & -b_x \\ -b_y & b_x & 0 \end{bmatrix} \qquad K\vec{a} = \vec{b} \times \vec{a}$$

$$\begin{pmatrix} x - x_0 \\ y - y_0 \\ -f \end{pmatrix} = k M \begin{pmatrix} x - x_L \\ y - y_L \\ z - z_L \end{pmatrix}$$

$$\frac{1}{k}\begin{pmatrix} x - x_0 \\ y - y_0 \\ -f \end{pmatrix} = \frac{1}{k}\underbrace{\begin{bmatrix} 1 & 0 & -x_0 \\ 0 & 1 & -y_0 \\ 0 & 0 & -f \end{bmatrix}}_{C}\begin{bmatrix} x \\ y \\ 1 \end{bmatrix} = \underbrace{M\begin{pmatrix} x - x_L \\ y - y_L \\ z - z_L \end{pmatrix}}_{a}$$

$$a_1 \cdot \underbrace{(b \times a_2)}$$

$$a_1^T K_b a_2$$