

$$f(p) = \begin{bmatrix} n_i \\ n_i^t p_i \end{bmatrix}^t \begin{bmatrix} p \\ 1 \end{bmatrix} \quad Q_i^0 = \begin{bmatrix} n_i \\ d_i \end{bmatrix} \begin{bmatrix} n_i \\ d_i \end{bmatrix}^t =$$

$d_i$

$$\left[ \begin{array}{c|c} n_i n_i^t & d_i n_i \\ \hline d_i n_i^t & d_i^2 \end{array} \right] \leftarrow$$

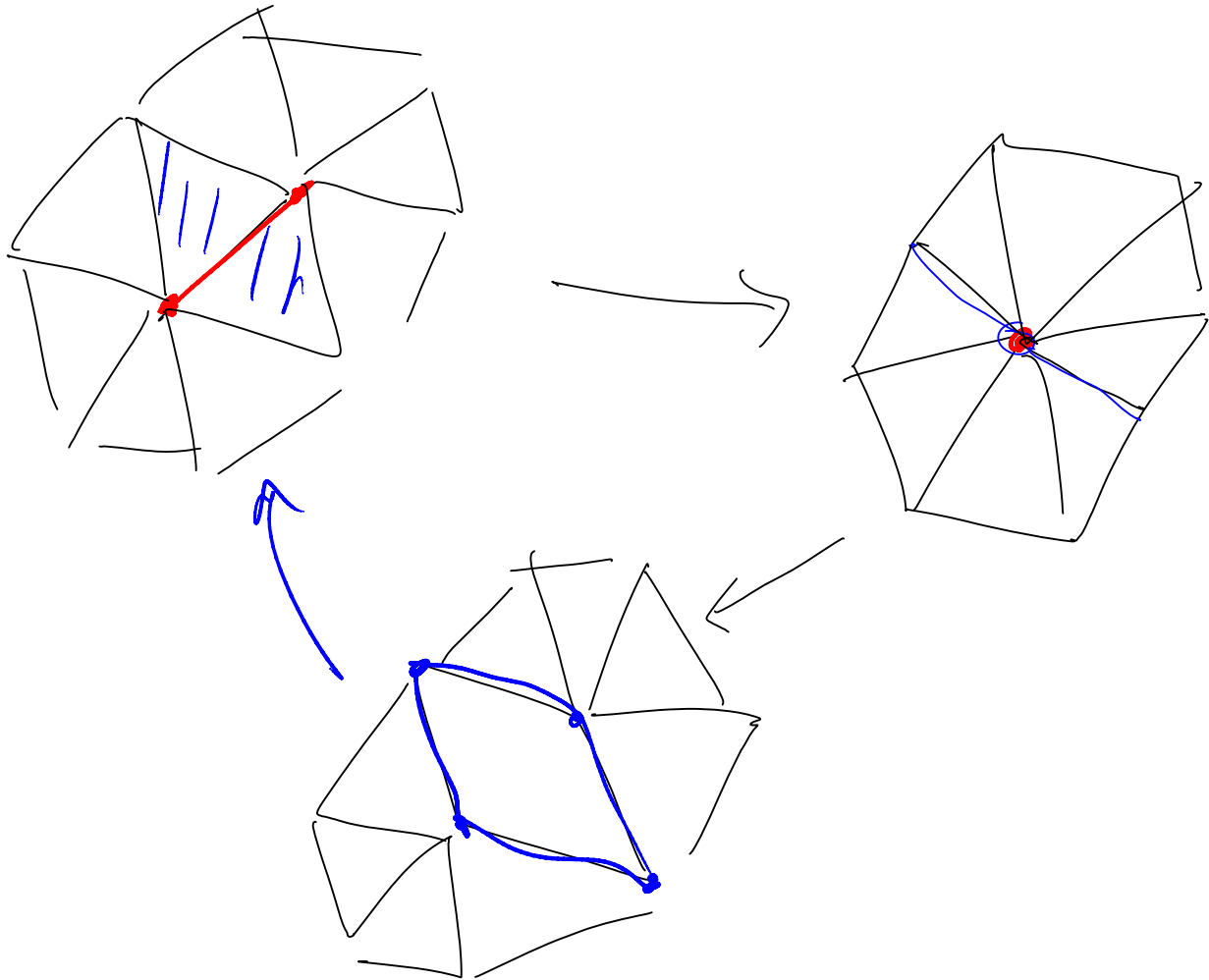
$\|n\|^2 = 1$

$$n n^t = \begin{bmatrix} n_x^2 & n_x n_y & n_x n_z \\ n_x n_y & n_y^2 & n_y n_z \\ n_x n_z & n_y n_z & n_z^2 \end{bmatrix}$$

$$\text{trace}(nn^t) = \|n\|^2 = 1$$

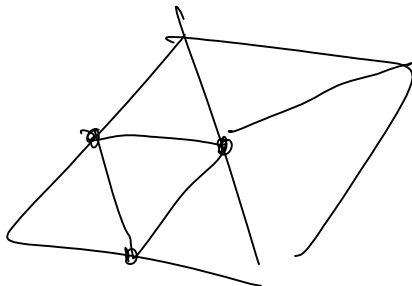
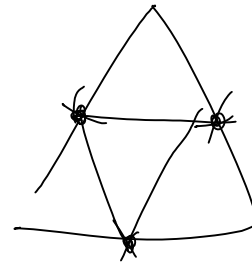
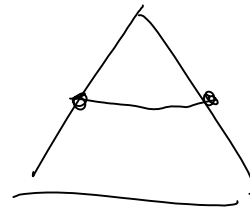
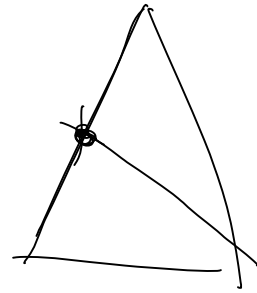
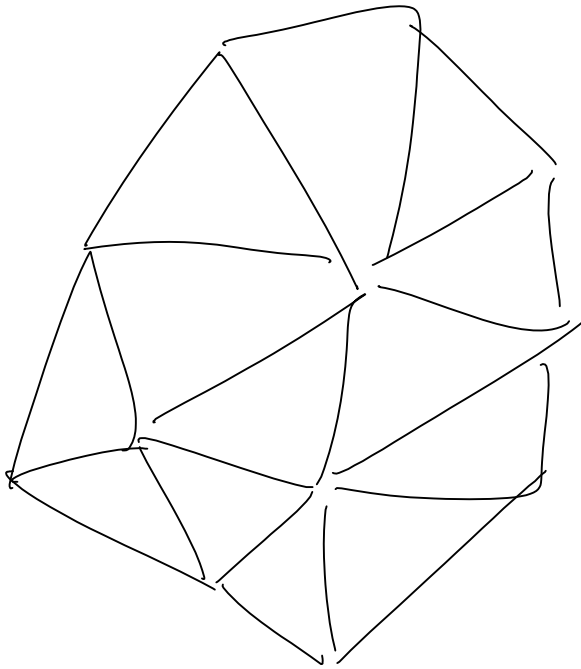
# Refinement

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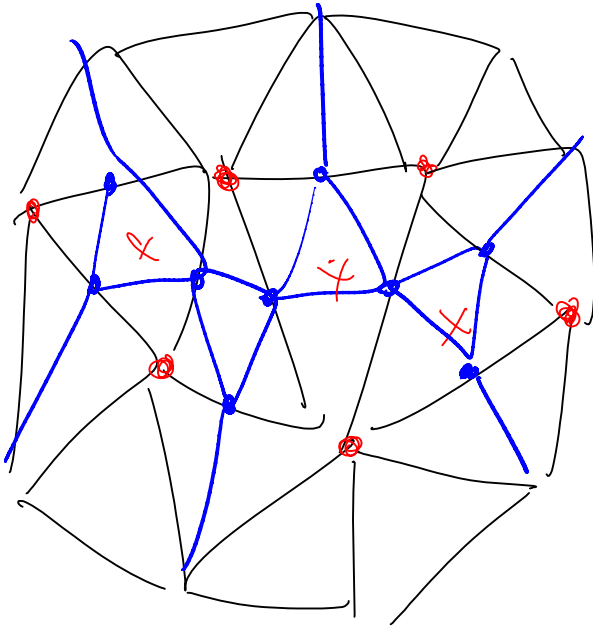
# Triangle splitting rules

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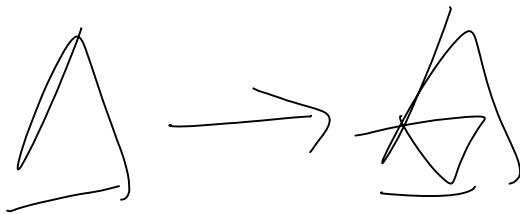


# Adaptive subdivision

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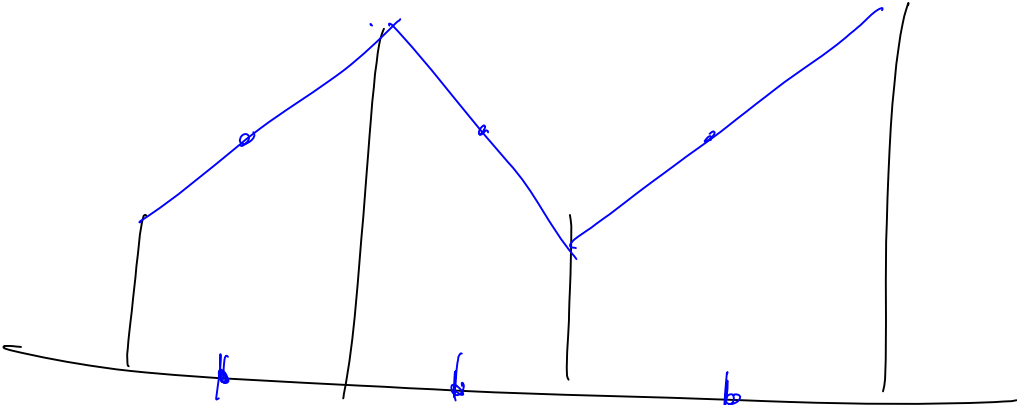


Loop subdivision



# 1D subdivision

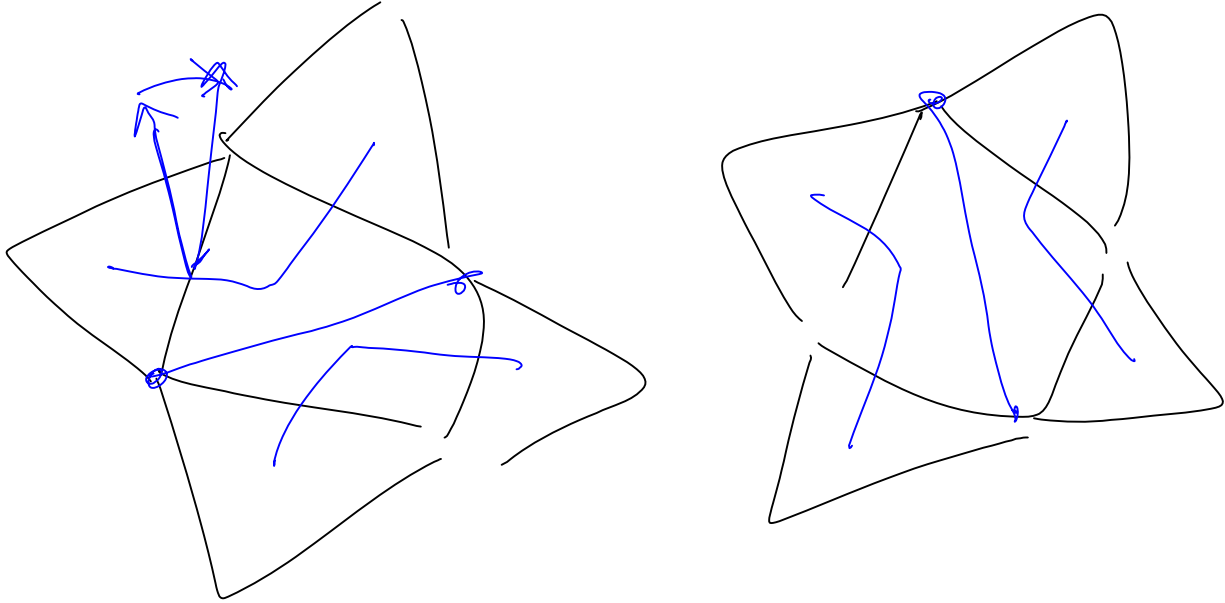
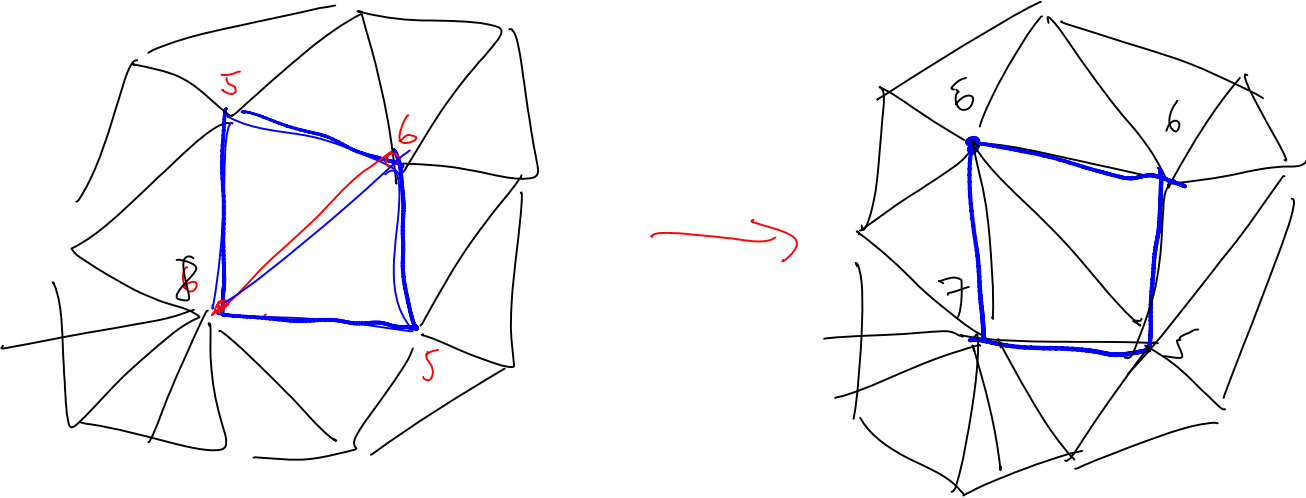
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# Edge flipping

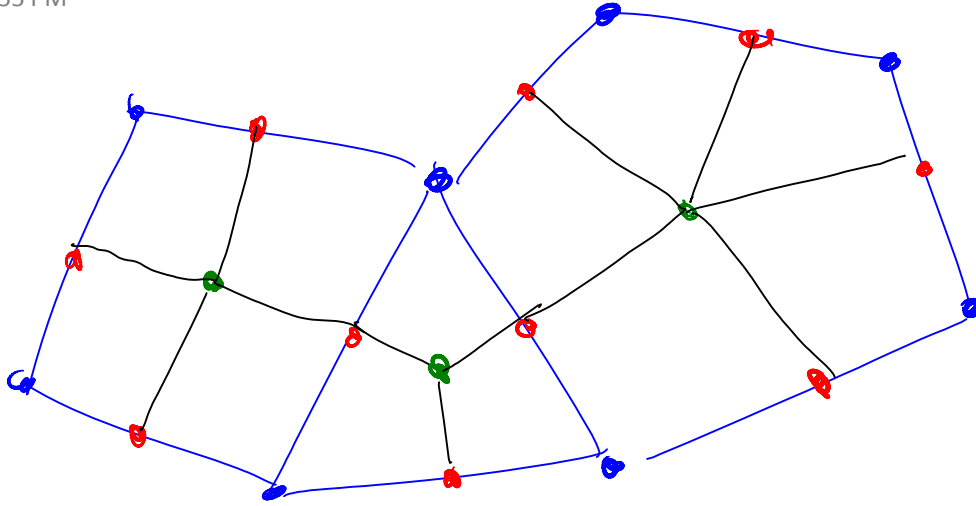
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# Catmull-Clark

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# Doo-Sabin

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