CS 361 Mountain Story
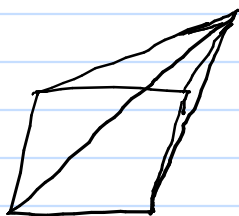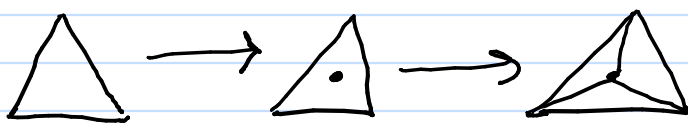
Split and shift each side

For each Side in Sides:
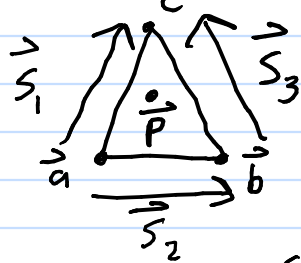   Find centroid of side
   Shift centroid
   replace side w/ 3 new trias

Process:

$$\vec{S_1} = \vec{C} - \vec{a} = \langle C_x - a_x, C_y - a_y, C_z - a_z \rangle$$
$$\vec{S_2} = \vec{b} - \vec{a}$$
$$\vec{S_3} = \vec{C} - \vec{b}$$

$$\vec{P} = \frac{\vec{a} + \vec{b} + \vec{c}}{3}$$
Centroid

How to shift $\vec{p}$?   random?   (normal?)

$$\vec{n} = \vec{S_1} \times \vec{S_2} = \det \begin{bmatrix} \hat{x} & \hat{y} & \hat{z} \\ x_1 & y_1 & z_1 \\ x_2 & y_2 & z_2 \end{bmatrix}$$

$\|\vec{n}\|$ is too big, use unit normal

$\frac{1}{\|\vec{n}\|} \cdot \vec{n}$ then mult by random r, where $r \in [0, 1]$

$$\vec{p}^{\,1} = \frac{r \cdot \vec{n}}{\|\hat{n}\|}$$