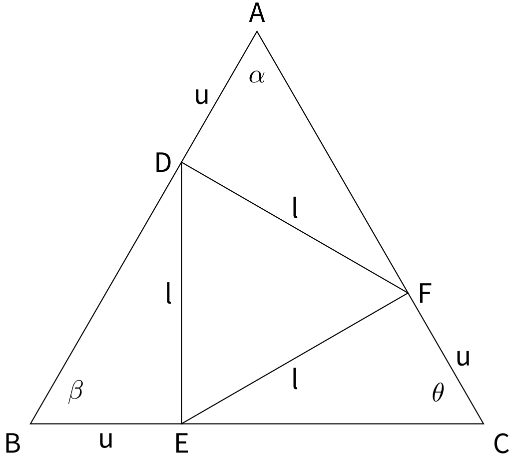
△DEF 为正三角形 AD=BF=CE
求证 △ABC为正三角形



假设 $\angle\alpha < \angle\theta$

$\angle\alpha > \angle\theta$

$\because \cos\alpha = \frac{u^2+|AF|^2-l^2}{2u|AF|} = \frac{u^2+x^2-l^2}{2ux}$

$\therefore (\cos\alpha)' = (\frac{(u^2-l^2)}{2u}\frac{1}{x} + \frac{x}{2u})' = \frac{(l^2-u^2)}{2u}\frac{1}{x^2} + \frac{1}{2u}$

如果 $l > u$, 随着 α 增大 $|AF|$ 减小

$\angle\alpha < \angle\theta$
=> |AF| < |CE|
=> |AC| < |BC|
=> $\angle\beta < \angle\alpha$
=> |BD| > |AF|
=> |AB| > |AC|
=> $\angle\theta > \angle\beta$
=> |CE| < |BD|
=> |BC| < |AB|
=> $\angle\alpha > \angle\theta$