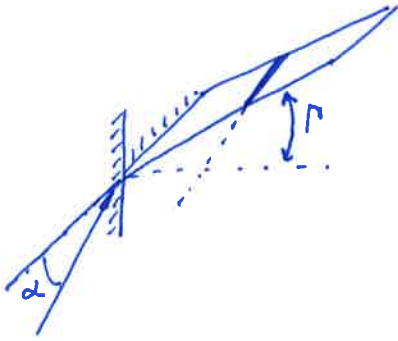
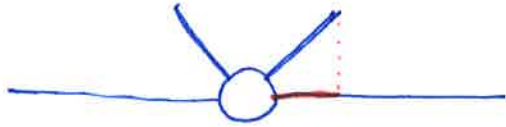


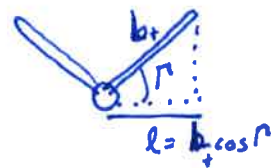
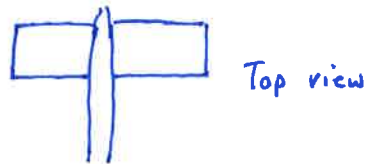
V-Tail Pitch Stability

The proper size of a v-tail is **NOT** the projected area.



There are two terms from geometry:

1) projected area



2) Chordwise AOA

$$\alpha_{\text{eff}} = \alpha \cos \Gamma$$

Thus

$$L = q S C_{L\alpha} \alpha = q \underbrace{b_+ \cos \Gamma \bar{c}}_{\text{projected Area}} \cdot C_{L\alpha} \cdot \underbrace{\alpha \cos \Gamma}_{\text{effective AOA}}$$

$$L = L_+ \cos^2 \Gamma$$

If you use only the projected area,
your tail will be too small by $\frac{1}{\cos \Gamma}$