



Equal-arm toggle link

Magnification of the movement of the central joint with motion of the end joint.

$$H = [1^2 - (X/2)^2]^{0.5}$$

From which:

$$dH/dX = -X/(16-4*X^2)^{0.5}$$

Just for kicks, solve for $dH/dX = 1$, the point at which there is no magnification of movement.

$$X = (16/5)^{0.5} = 1.7888544$$

Since the maximum X is 2, we are limited to a stroke of 89% of maximum by this criterion. That's not too bad!