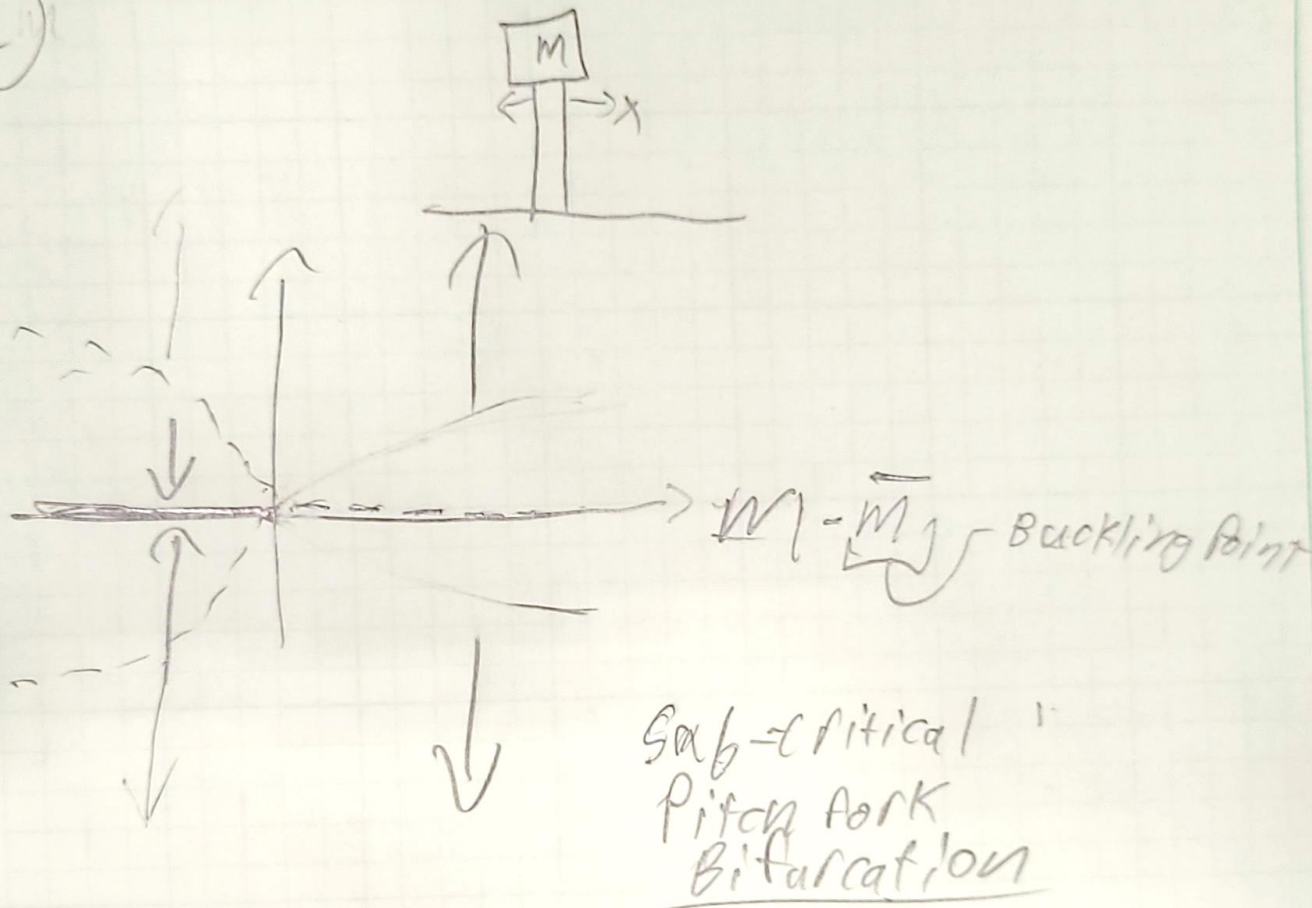


1)



2) $\dot{x} = r - x - e^{-x}$ saddle-node

$$f(x) = r - x - e^{-x}$$

$$\frac{df}{dx} = -1 + e^{-x}$$

$$e^{-x} = 1$$

$$x = -\ln(1) \rightarrow r = -\ln(0)$$

$$\boxed{r_c = 0}$$