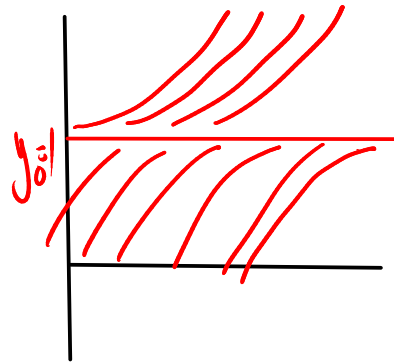
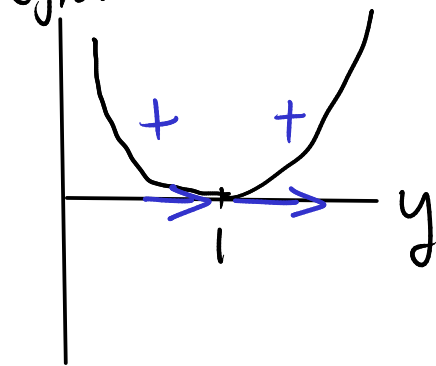


One more possibility:

$$f(y) = (y-1)^2$$

$y_0 = 1$ is the only critical point



Neither stable nor unstable: semistable.