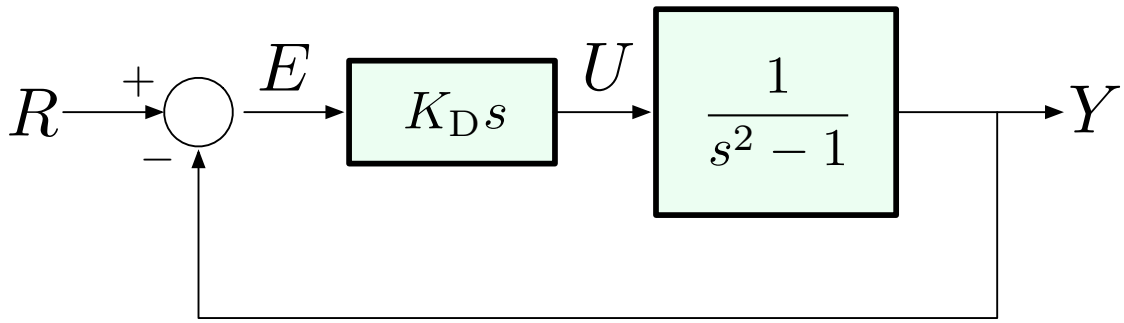
Back to Analysis: Derivative Feedback



$$\frac{Y}{R} = \frac{\frac{K_D s}{s^2-1}}{1+\frac{K_D s}{s^2-1}} = \frac{K_D s}{s^2 + K_D s - 1}$$

— still not good: the denominator has a negative coefficient
$\Longrightarrow$ not stable; also we have picked up a zero at the origin.

But:

- P-control affected the coefficient of s^0 (constant term)
- D-control affected the coefficient of s

— let's combine them!!