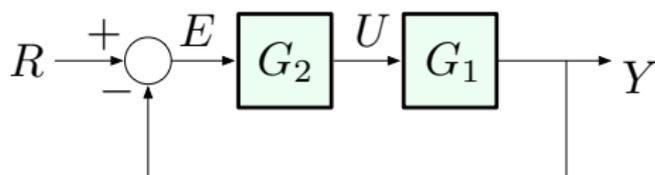


## Unity Feedback



Let's practice with deriving transfer functions:  $\frac{\text{forward gain}}{1 + \text{loop gain}}$

- ▶ Reference  $R$  to output  $Y$ :

$$\frac{Y}{R} = \frac{G_1 G_2}{1 + G_1 G_2}$$

- ▶ Reference  $R$  to control input  $U$ :

$$\frac{U}{R} = \frac{G_2}{1 + G_1 G_2}$$

- ▶ Error  $E$  to output  $Y$ :

$$\frac{Y}{E} = G_1 G_2 \quad (\text{no feedback path})$$