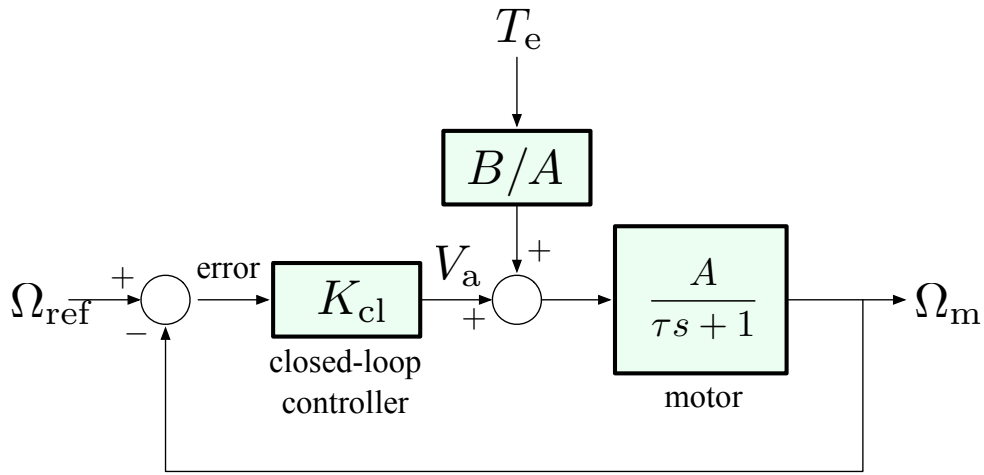
Disturbance Rejection: Feedback Control



$$\Omega_m = \underbrace{\frac{AK_{cl}}{\tau s + 1 + AK_{cl}}}_{\text{DC gain}=\frac{AK_{cl}}{1+AK_{cl}}} \Omega_{ref} + \underbrace{\frac{B}{\tau s + 1 + AK_{cl}}}_{\text{DC gain}=\frac{B}{1+AK_{cl}}} T_e$$

(provided all transfer functions are strictly stable)

Assuming that the reference ω_{ref} and the disturbance τ_e are constant, we apply FVT:

$$\omega_m(\infty) = \frac{AK_{cl}}{1 + AK_{cl}}\omega_{ref} + \frac{B}{1 + AK_{cl}}\tau_e$$