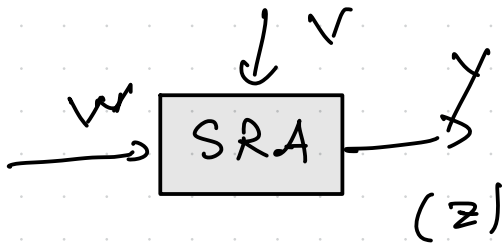
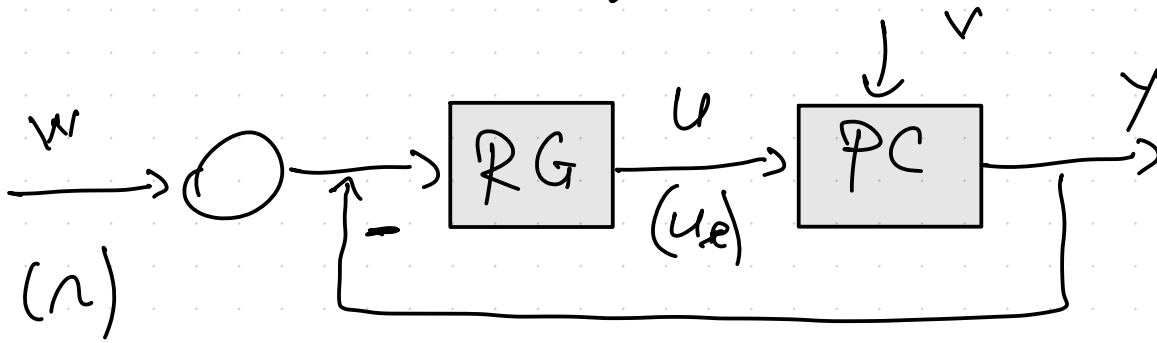


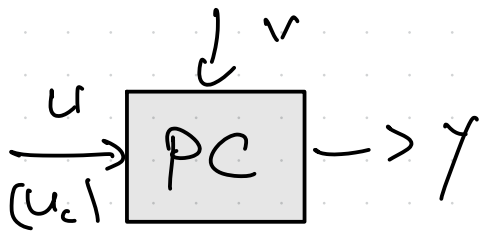
SRA

System Reglere Automat



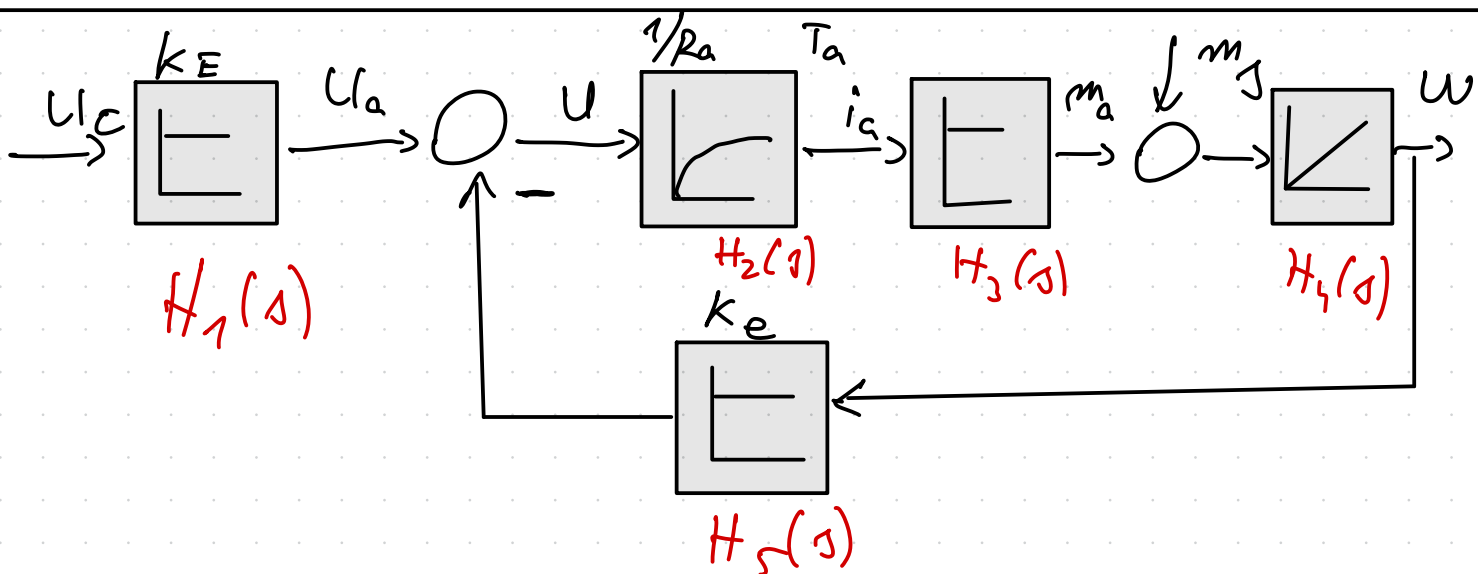
$$H_{y_v}(s) = \left. \frac{y(s)}{v(s)} \right|_{w=0}$$

$$H_{y_v}(s) = \left. \frac{y(s)}{v(s)} \right|_{w=0}$$



$$H_{y_u}(s) = \left. \frac{y(s)}{u(s)} \right|_{v=0}$$

$$H_{y_v}(s) = \left. \frac{y(s)}{v(s)} \right|_{u=0}$$



$$H_1(s) = k_E (\mathbb{E}T - P)$$

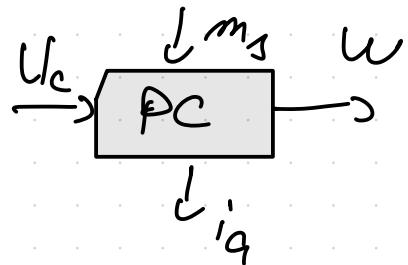
$$H_2(s) = 1/R_a \cdot \frac{1}{1+sT_a} (\mathbb{E}T - P T_1)$$

$$H_3(s) = k_m (\mathbb{E}T - P)$$

$$H_4(s) = \frac{1}{J s} (\mathbb{E}T - \mathbb{I})$$

$$H_5(s) = k_e (\mathbb{E}T + P)$$

$$H_{\omega, u_c}(s) = \left. \frac{\omega(s)}{u_c(s)} \right|_{m_s=0}$$

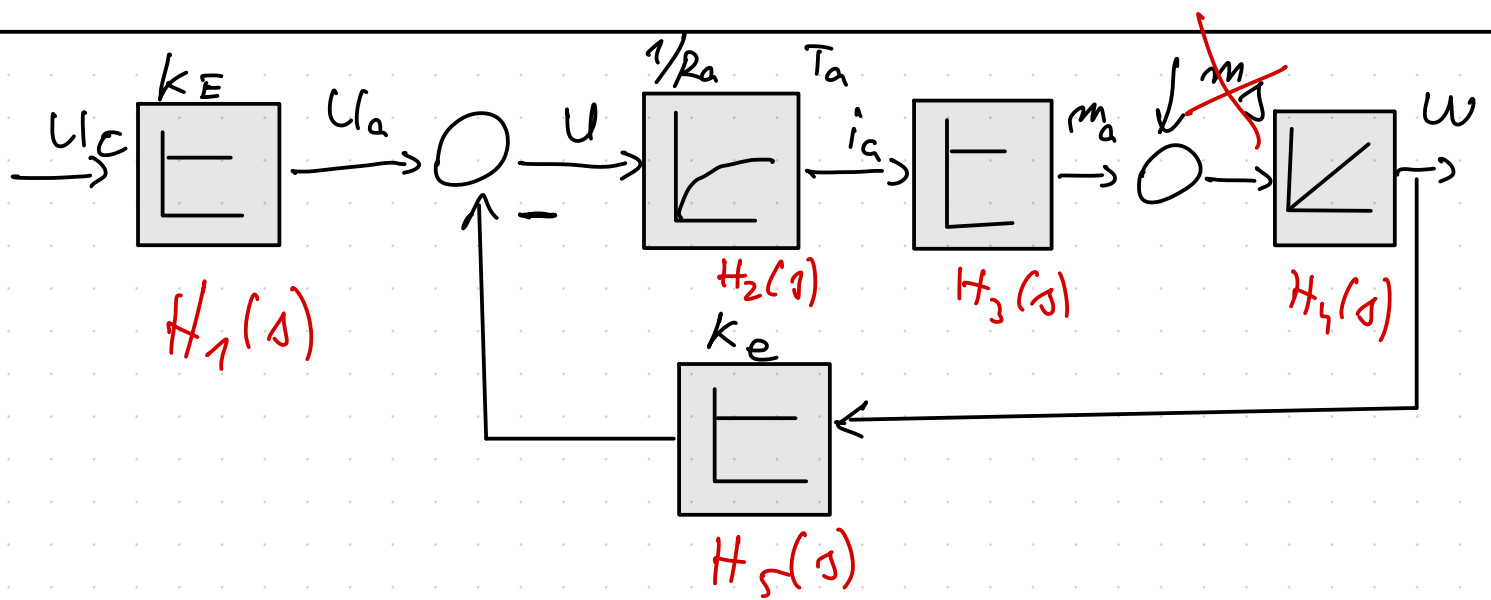


$$H_{\omega, m_s}(s) = \left. \frac{\omega(s)}{m_s(s)} \right|_{u_c=0}$$

$$H_{i_a, u_c}(s) = \left. \frac{i_a(s)}{u_c(s)} \right|_{m_s=0}$$

$$H_{i_a, m_s}(s) = \left. \frac{i_a(s)}{m_s(s)} \right|_{u_c=0}$$

$$H_{\omega, u_c}(s) =$$



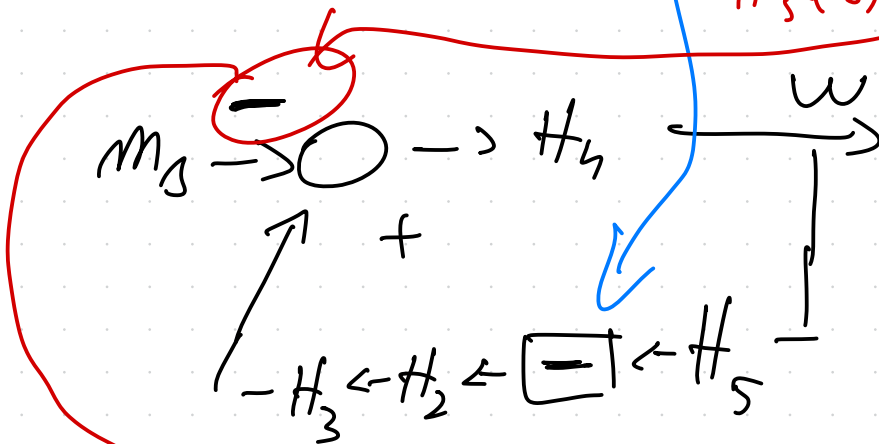
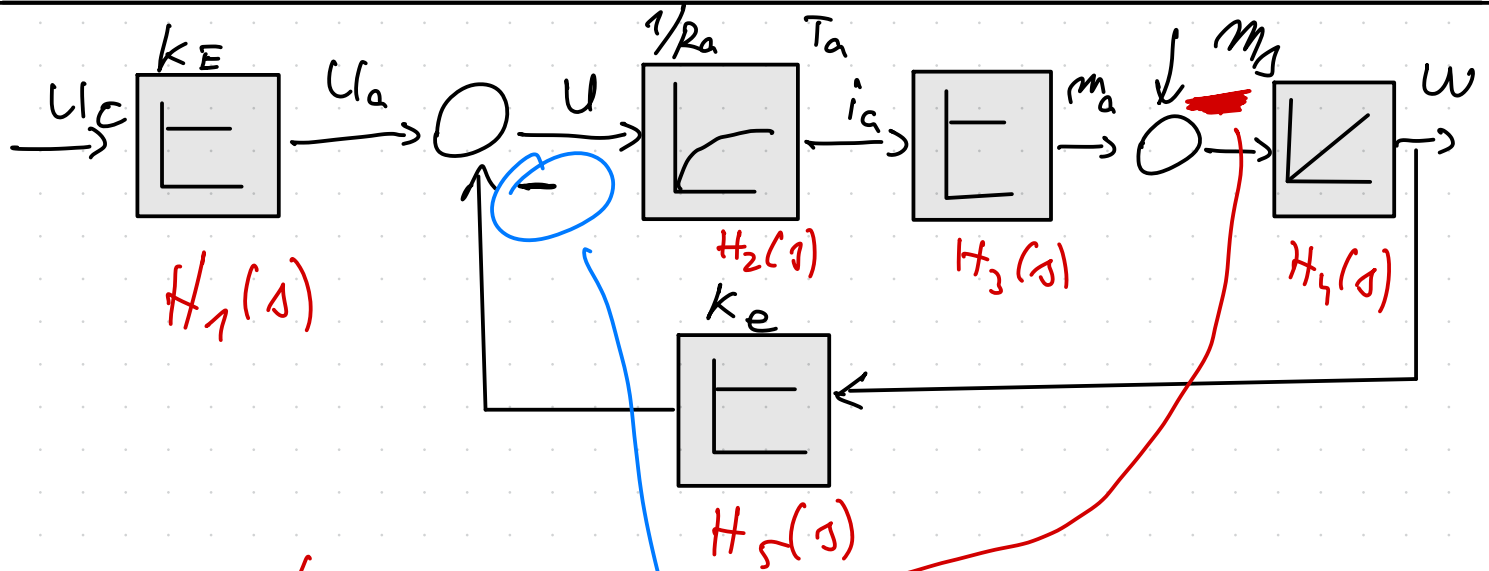
$$U \xrightarrow{H_1(s)} \underbrace{H_{R1}(s)}_{\text{Reactive}} = H_w U_c(s)$$

$$H_{e1}(s) = \frac{H_2(s) H_3(s) H_4(s)}{1 + H_2(s) H_3(s) H_4(s) H_5(s)}$$

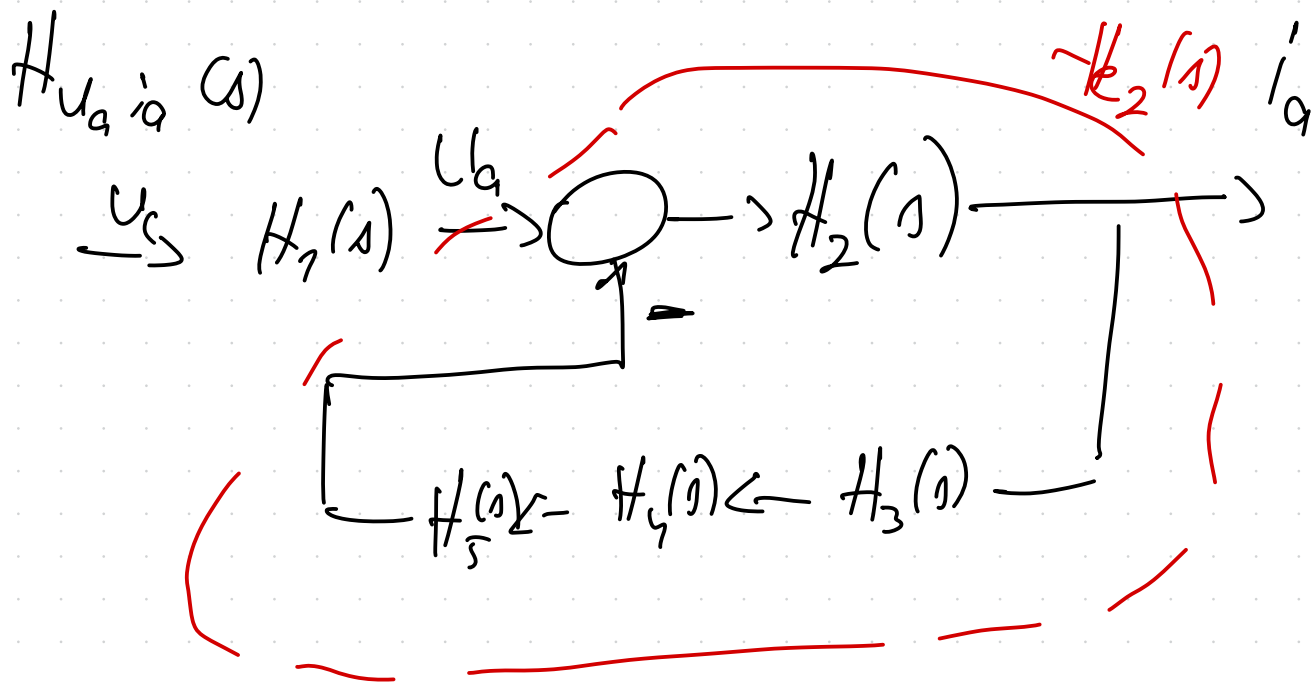
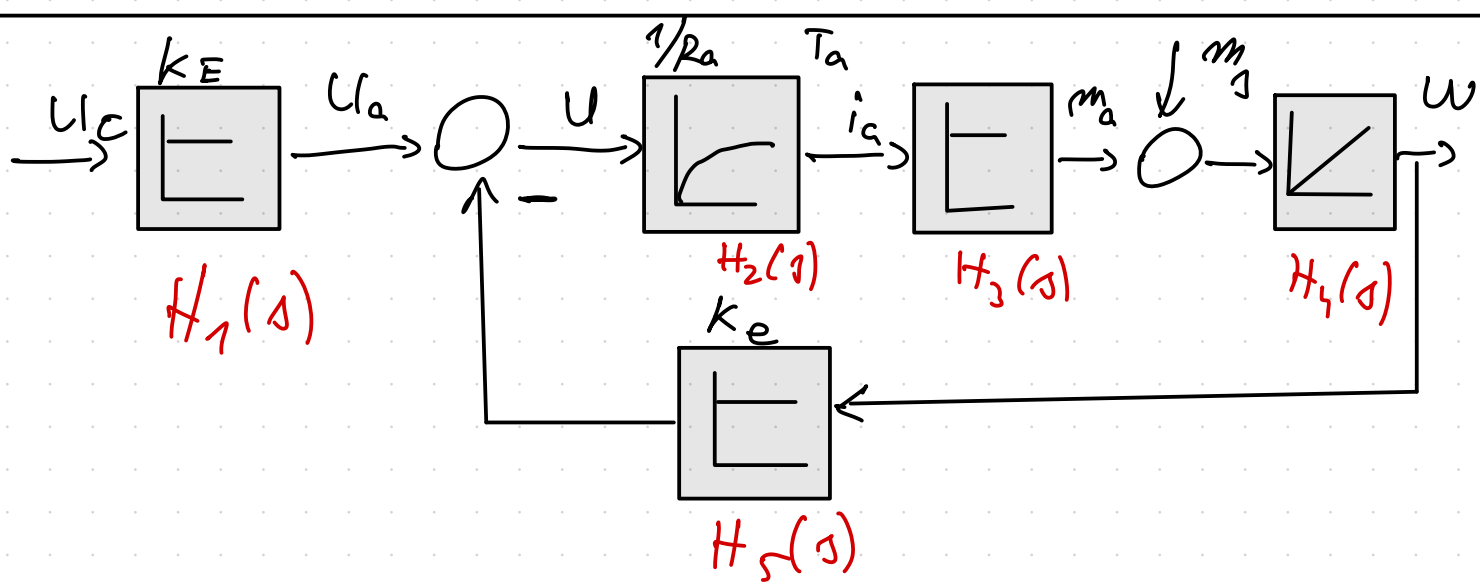
$$H_{w, U_c}(s) = k_E \cdot \frac{\frac{1/R_a}{1+sT_a} \cdot k_m \cdot \frac{1}{J_s}}{1 + \frac{k_m \cdot k_e / R_a}{J_s(1+sT_a)}} =$$

$$k_E \cdot \frac{\frac{k_m / R_a}{J_s(1+sT_a)}}{\frac{J_s(1+sT_a) + k_m k_e / R_a}{J_s(1+sT_a)}} = \frac{k_E \cdot k_m / R_a}{\frac{k_m k_e}{R_a} (1+sT_a) + \frac{k_m k_e}{J_s R_a}}$$

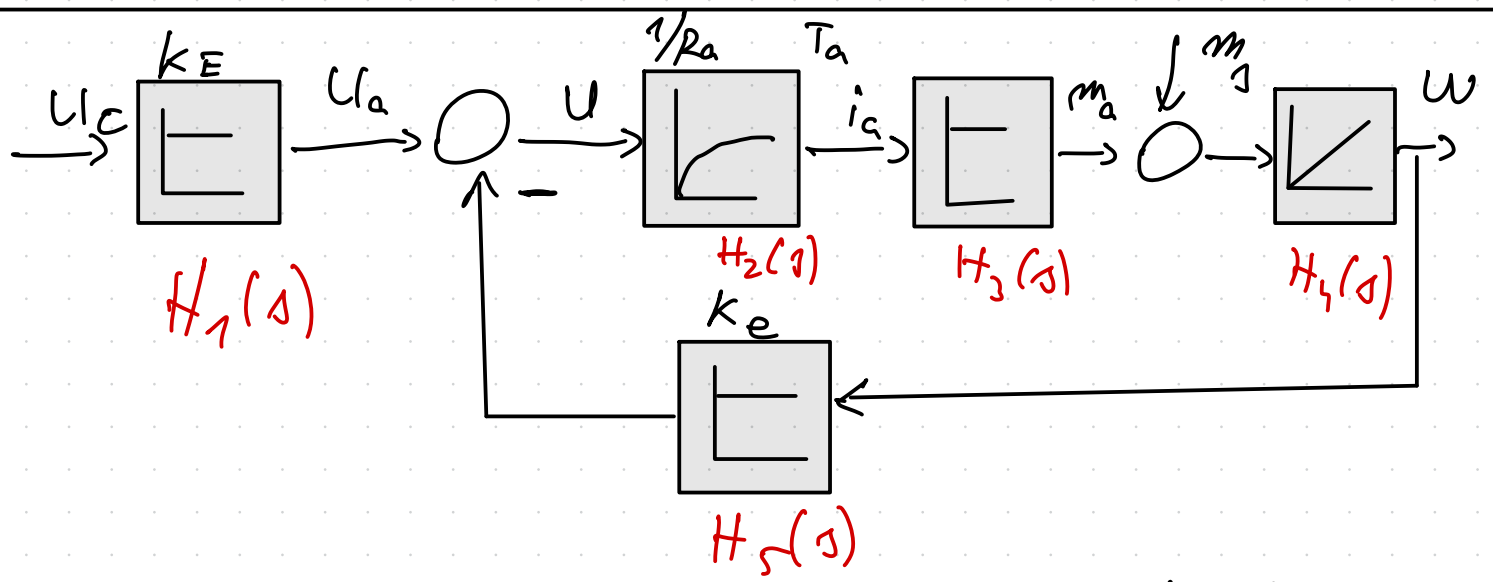
$$= \frac{k_E (k_m / R_a)}{\frac{k_m}{R_a} k_e s T_m (1 + s T_a) + 1} = \frac{k_E / k_e}{s^2 T_a T_m + s T_m + 1}$$



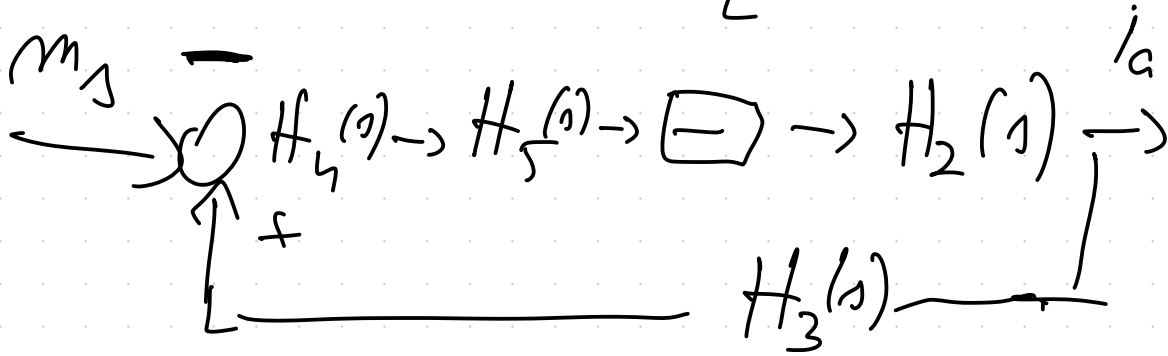
$$H_{wm_D}(s) = - \frac{H_4(s)}{1 - H_4(s) [-H_5(s) H_2(s) H_3(s)]}$$



$$\begin{aligned}
 H_{i_a U_c}(s) &= H_1(s) \cdot \frac{H_2(s)}{1 + H_2(s) [H_3(s) H_4(s) H_5(s)]} \\
 &= H_1(s) \cdot \frac{H_2(s)}{1 + H_2(s) [H_3(s) H_4(s) H_5(s)]}
 \end{aligned}$$



$$H_{i_a m_s}(s) = - \frac{H_1(s) H_5(s) (-) H_2(s)}{1 - [- H_2(s) H_4(s) H_5(s)] H_3(s)}$$



Sist. include parabele \rightarrow 4 fct. transf.

+ Pima schema
poza cv. got
4 fct. transf

$H_{\theta_p u_c}$
 $H_{\theta_p \theta_e}$
 $H_{\theta_c u_c}$
 $H_{\theta_c \theta_e}$