$$MAI = \begin{pmatrix} Y_A & 0 & -Y_A & 0 \\ 0 & Y_B + G & -Y_B & -G \\ -Y_A & -Y_B & Y_A + Y_B + Y_C & -Y_C \\ 0 & -G & -Y_C & Y_C + G \end{pmatrix}$$

$$A\begin{smallmatrix} i & j \\ m & m \end{smallmatrix} = \frac{V_{ij}}{V_{mn}} = \frac{V_o}{V_i} = signo\,(m-n)\cdot signo\,(i-j)\cdot \frac{Y\begin{smallmatrix} m & n \\ i & j \end{smallmatrix}}{Y\begin{smallmatrix} m & n \\ m & n \end{smallmatrix}}$$

$$A_V = signo\,(0-1)\,signo\,(3-1)\cdot \frac{Y\begin{smallmatrix} 0 & 1 \\ 3 & 1 \end{smallmatrix}}{Y\begin{smallmatrix} 0 & 1 \\ 0 & 1 \end{smallmatrix}}$$

$$A_V = -1 \cdot \frac{(-Y_A \cdot -Y_C)}{(Y_A + Y_B + Y_C)\cdot(Y_C + G) - Y_C^2}$$

$$Y_A = \frac{1}{sL_1}$$

$$Y_B = sC$$

$$Y_C = \frac{1}{sL_2}$$

$$G = \frac{1}{R}$$

$$A_V = \frac{-Y_A Y_C}{(Y_A + Y_B + Y_C)(Y_C + G) - Y_C^2}$$

$$A_V = \frac{-\dfrac{1}{s^2 L_1 L_2}}{\left(\dfrac{1}{sL_1} + sc + \dfrac{1}{sL_2}\right) \cdot \left(\dfrac{1}{sL_2} + \dfrac{1}{R}\right) - \dfrac{1}{s^2 L_2^2}}$$

$$A_V = \frac{-\dfrac{1}{s^2 L_1 L_2}}{\dfrac{1}{s^2 L_1 L_2} + \dfrac{1}{sL_1 R} + \dfrac{c}{L_2} + \dfrac{sc}{R} + \cancel{\dfrac{1}{s^2 L_2^2}} + \dfrac{1}{sL_2 R} - \cancel{\dfrac{1}{s^2 L_2^2}}}$$

$$A_V = \frac{-\dfrac{1}{\cancel{s^2 L_1 L_2}}}{\dfrac{R + sL_2 + s^2 L_1 Rc + s^3 c L_1 L_2 + sL_1}{\cancel{s^2 L_1 L_2} R}}$$

$$\boxed{A_V = \frac{-R / cL_1 L_2}{s^3 + s^2 \cdot \dfrac{R}{L_2} + s \dfrac{(L_1 + L_2)}{cL_1 L_2} + \dfrac{R}{cL_1 L_2}}}$$

Tendria que ver esto del signo