$$e^{At} \rightarrow \left[e^{At}\right]_{t=0} = I$$

$$e^{At} \rightarrow \frac{d}{dt}\left[e^{At}\right] = A\left[e^{At}\right]$$

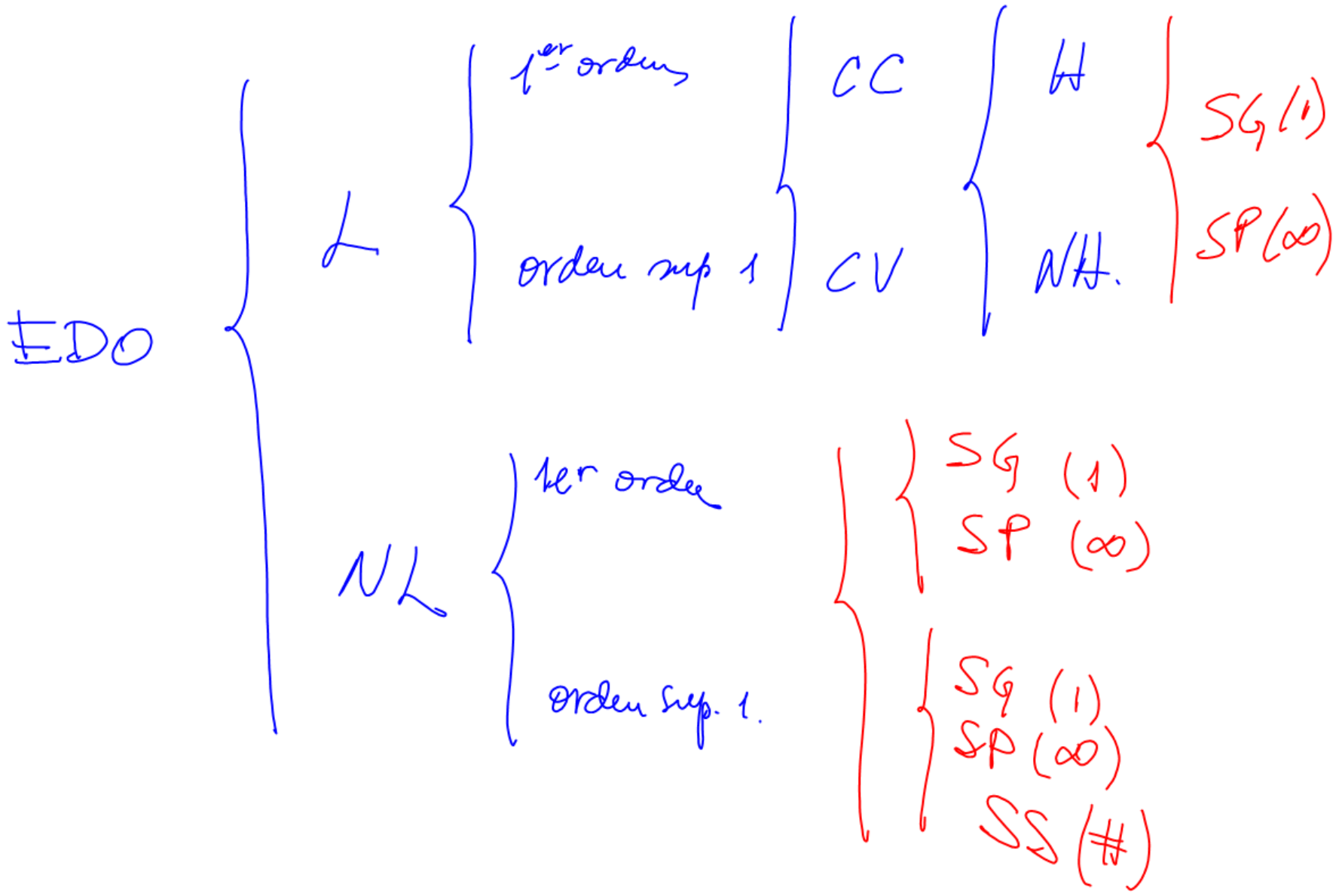
$$\frac{d}{dt}\left[e^{At}\right]_{t=0} = AI.$$

Solución General
Solución Particular
Solución Singular $\Longrightarrow$ NL

$$y_g = C_1 e^{2x} + C_2 e^{3x} + C_3 e^{5x}$$ EDO (3) L cc H.

$$y_p = -2e^{2x} + 3e^{3x} - 5e^{5x}$$

$$C_1 = -2 \quad C_2 = 3 \quad C_3 = -5$$


EDO
L
NL
1er orden
orden sup 1
1er orden
orden sup. 1.
CC
CV
H
NH.
SG (1)
SP (∞)
SG (1)
SP (∞)
SG (1)
SP (∞)
SS (#)

$$y_p = -2e^{2x} + 3e^{3x} - 5e^{5x}$$

$$y(0) = -2e^{2(0)} + 3e^{3(0)} - 5e^{5(0)}$$

$$y(0) = -2(1) + 3(1) - 5(1)$$

$$y(0) = -4$$

$$\frac{dy}{dx} = -4e^{2x} + 9e^{3x} - 25e^{5x}$$

$$y'(0) = -4(1) + 9(1) - 25(1)$$

$$y'(0) = -20$$

$$\frac{d^2y}{dx^2} = -8e^{2x} + 27e^{3x} - 125e^{5x}$$

$$y''(0) = -106$$

$y(0) = -4$

$y'(0) = -20$

$y''(0) = -106$

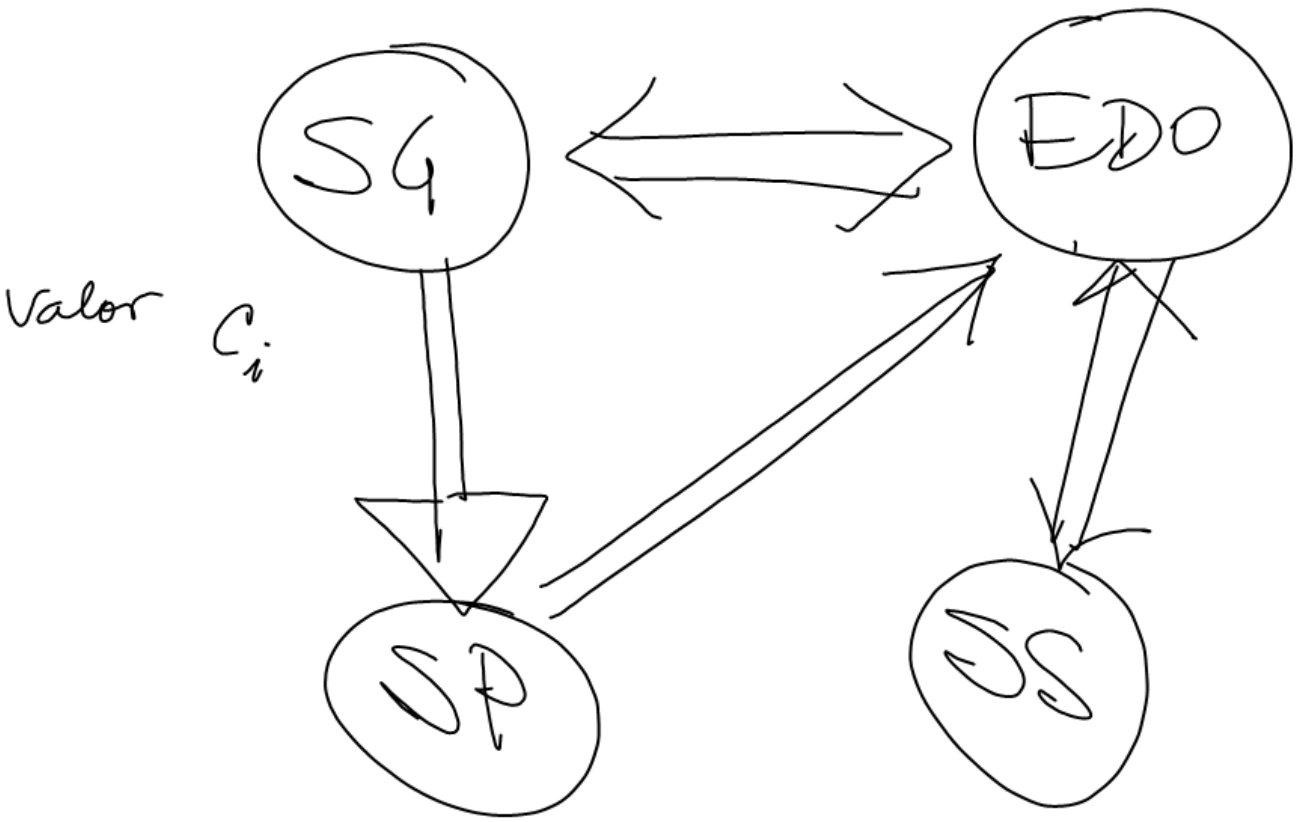
$$(m-2)(m-3)(m-5)=0$$

$$(m^2-5m+6)(m-5)=0$$

$$m^3-10m^2+31m-30=0$$

$$\frac{d^3y}{dx^3}-10\frac{d^2y}{dx^2}+31\frac{dy}{dx}-30y=0$$

# EDO(n) NL




Valor $C_i$

$$y_g = C_1 x^2 + \frac{C_2}{x} \quad \Rightarrow \quad CV$$

$$y_g = C_1 x^2 + C_2 x + C_3 \qquad (m-1)^3 = 0$$

CC.

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$$y_g = C_1 e^x + C_2 \cos(2x) + 5 \operatorname{sen}(2x) \qquad CV$$

$$y_g = 4e^x + C_2 \cos(2x) + C_3 \operatorname{sen}(2x) \qquad CC.$$

$$(m-2i)(m+2i) = 0$$