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Example 2
$\frac{dw}{dt} = \int w + T^{-1} Bu$
$\Lambda = T^{-1}AT$
$\frac{dW}{dt} = \begin{bmatrix} -1 & 0 \\ 0 & -2 \end{bmatrix} W + \begin{bmatrix} -1 & -2 \\ 2 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \end{bmatrix} u_{j}^{2} u_{j}^{2} = 1$
$\frac{dw_1}{dt} = -w_1 - 1 \in$
dwc = -2w2+2 E
$W_0 = T^{-1} \times 0 = \begin{bmatrix} -1 & -2 \\ 2 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} = \begin{bmatrix} -3 \\ 4 \end{bmatrix}$
w, = -3e-t- (e-12-2)
= -3e-+ - [e-(++e)]
$= -3e^{-t} - \begin{bmatrix} 1 - e^{-t} \end{bmatrix}$
= -1-2e-6.
W2 = 1+3e-t.

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3/27/14, 5:43 AM, 4m 27s



Example 2

$$\frac{dw}{dt} = \frac{\sqrt{w + T^{-1}Bu}}{dt}$$

$$\frac{dW}{dA} = \begin{bmatrix} -1 & 0 \\ 0 & -2 \end{bmatrix} \underline{W} + \begin{bmatrix} -1 & -2 \\ 2 & 2 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \end{bmatrix} \underline{u}; \underline{u} = 1$$

$$\frac{dw_1}{M} = -w, -1 \in$$

$$W_0 = T^{-1} \approx 0 = \begin{bmatrix} -1 - 2 \\ 2 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \end{bmatrix} = \begin{bmatrix} -3 \\ 4 \end{bmatrix}$$

$$w_1 = -3e^{-t} - \left[e^{-(t-7)}t\right]$$

$$= -3e^{-t} - \left[e^{-(t-7)}t\right]$$

$$= -3e^{-t} - [1 - e^{-t}]$$

$$= \begin{bmatrix} 1 & 1 & -1 - 2e^{-t} \\ -1 & -1/2 \end{bmatrix} \begin{bmatrix} -1 - 2e^{-t} \\ 1 + 3e^{-2t} \end{bmatrix}$$

$$2 = \begin{bmatrix} -2e^{-t} + 3e^{-2t} \\ 0.5 + 2e^{-t} - 1.5e^{-2t} \end{bmatrix}$$