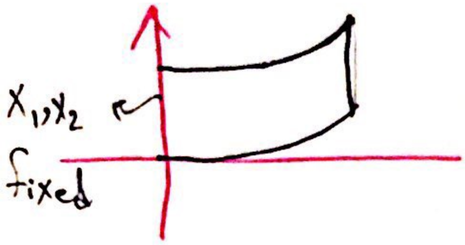
$$M_1 = C X_{1,11} - A X_{1,1111}$$

$$M_2 = C X_{2,11} - A X_{2,1111}$$

$$\begin{bmatrix} X_1 \\ X_2 \\ Q \\ R \\ A \\ B \\ S \\ T \end{bmatrix}$$

* list of variab



$$\begin{cases} X_{1,11} = Q \\ X_{1,1111} = S \end{cases}$$

$M_1 = CQ - AS$ → it is a drichlet B.C with two Variables!

$M_2 = CR - AT$

it Can be newman boundary Condition with one variable!

if yousee it as $M_1 = CQ - AQ_{,11}$ → newman

*I did not have time to try this idea to treat this as a neuman Boundary Condition!

Governing equations:

$$\mu(X_{1,11}+X_{1,22})-P_{,1}X_{2,2}+P_{,2}X_{2,1}-CX_{1,1111}+AX_{1,111111}=0$$

$$\mu(X_{2,11}+X_{2,2})+P_{,1}X_{1,2}-P_{,2}X_{1,1}-CX_{2,1111}+AX_{2,111111}=0$$

$$X_{1,1}X_{2,2}-X_{1,2}X_{2,1}=0$$

$X_{1,11}=Q$ (1) $\quad X_{2,11}=R$ (2) $\quad S=X_{1,1111}$ (3) $\quad T=X_{2,1111}$ (4)

$$\Rightarrow \mu(Q+X_{1,22})-AX_{2,2}+BX_{2,1}-CQ_{,11}+AS_{,11}=0 \quad (5)$$

$$\mu(R+X_{2,22})+AX_{1,2}-BX_{1,1}-CR_{,11}+AT_{,11}=0 \quad (6)$$

$$A-\mu(Q+X_{1,22})-CS=0 \quad (7)$$

$$B-\mu(R+X_{2,22})-CT=0 \quad (8)$$

8 equations / 8 variables

take the integral from both sides & integration by parts

$$\int(\mu\omega_1 Q-\mu\omega_{1,2}X_{1,2}-\omega_1 AX_{2,2}+\omega_1 BX_{2,1}+C\omega_{1,1}Q_{,1}-A\omega_{1,1}S_{,1})\,d\Omega+\int_{\Gamma}(\mu\omega_1 X_{1,2}-C\omega_1 Q_{,1}+A\omega_1 S_{,1})\,d\Gamma=0$$

$$\int(\mu\omega_2 R-\mu\omega_{2,2}X_{2,2}+\omega_2 AX_{1,2}-\omega_2 BX_{1,1}+C\omega_{2,1}R_{,1}-A\omega_{2,1}T_{,1})d$$

$$+\int_{T} (\mu \omega_2 X_{2,2} - C\omega_2 R_{,1} + A\omega_2 T_{,1})\, d\Gamma$$

$$\int (\omega_3 Q + \omega_{3,1} X_{1,1})\, d\Omega - \int_{T} \omega_3 X_{1,1}\, dT = 0$$

$$\int (\omega_4 R + \omega_{4,1} X_{2,1})\, d\Omega - \int_{T} \omega_4 X_{2,1}\, dT = 0$$

$$\int (\omega_5 S + \omega_{5,1} Q_{,1})\, d\Omega - \int_{T} \omega_5 Q_{,1}\, dT = 0$$

$$\int (\omega_6 T + \omega_{6,1} R_{,1})\, d\Omega - \int_{T} \omega_6 R_{,1}\, dT = 0$$

$$\int \omega_7 (A - \mu Q - CS + \mu \omega_{7,2} X_{1,2})\, d\Omega - \int \mu \omega_2 X_{1,2}\, dT = 0$$

$$\int \omega_8 (B - \mu R - CT + \mu \omega_{7,2} X_{2,2})\, d\Omega - \int \mu \omega_8 X_{2,2}\, dT = 0$$

$$\omega = \sum_{i=1}^{n} \omega_i \psi_i$$

I used 2nd order lagrangian element at first. But, I have the code for the 4th order that needs some modifiction to attach the original code