T 13 b

$$\int_{\delta_{20}} \left(\lambda \frac{\partial p^{(9)}}{\partial x_1}\frac{\partial p^{(8)}}{\partial x_1} + \lambda \frac{\partial p^{(9)}}{\partial x_2}\frac{\partial p^{(8)}}{\partial x_2} + a\, p^{(9)} p^{(8)}\right) dx =$$

$r = 20:\quad 1 \leftrightarrow 8,\quad 2 \leftrightarrow 9,\quad 3 \leftrightarrow 14$

$\delta_{20} \longleftrightarrow \Delta$

$$= \int_{\delta_{20}} \left(\lambda \frac{\partial p^{(20,2)}}{\partial x_1}\frac{\partial p^{(20,1)}}{\partial x_1} + \lambda \frac{\partial p^{(20,2)}}{\partial x_2}\frac{\partial p^{(20,1)}}{\partial x_2} + a\, p^{(20,2)} p^{(20,1)}\right) dx =$$

$$= \int_{\Delta} \left(\lambda(x_{\delta_{20}}(\xi)) \frac{\partial p^{(2)}(\xi)}{\partial x_1}\frac{\partial p^{(1)}}{\partial x_1} + \lambda(\quad) \frac{\partial p^{(2)}(\xi)}{\partial x_2}\frac{\partial p^{(1)}(\xi)}{\partial x_2} + a(\cdot)\, p^{(2)} p^{(1)}\right) |J_{\delta_{20}}|\, d\xi$$

$$x = x_{\delta_{20}}(\xi) = J_{\delta_{20}}\, \xi + x^{(8)}$$

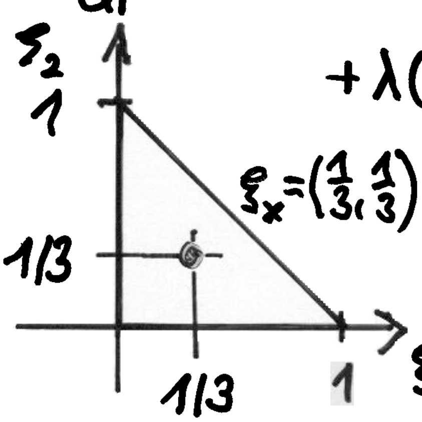
$$\nabla_x = J_{\delta_r}^{-T} \nabla_\xi, \quad \nabla_x = \begin{pmatrix} \frac{\partial}{\partial x_1} \\ \frac{\partial}{\partial x_2} \end{pmatrix} \quad \nabla_\xi = \left(\frac{\partial}{\partial \xi_1}, \frac{\partial}{\partial \xi_2}\right)^T$$

$$\xi = \begin{pmatrix} \xi_1 \\ \xi_2 \end{pmatrix} = J_{\delta_{20}}^{-1}(x - x^{(8)}), \quad J_{\delta_{20}}^{-1} = \frac{1}{|J_{\delta_{20}}|}\begin{bmatrix} x_2^{(14)} - x_2^{(8)} & -(x_1^{(14)} - x_1^{(8)}) \\ -(x_2^{(9)} - x_2^{(8)}) & x_1^{(9)} - x_1^{(8)} \end{bmatrix}$$

$$\nabla_x = J_{\delta_r}^{-T}\nabla_\xi \begin{cases} \frac{\partial}{\partial x_1} = \frac{\partial}{\partial \xi_1}\frac{\partial \xi_1}{\partial x_1} + \frac{\partial}{\partial \xi_2}\frac{\partial \xi_2}{\partial x_1} = \\ \qquad = \frac{1}{|J_{\delta_{20}}|}\left[(x_2^{(14)} - x_2^{(8)})\frac{\partial}{\partial \xi_1} - (x_2^{(9)} - x_2^{(8)})\frac{\partial}{\partial \xi_2}\right] \\ \frac{\partial}{\partial x_2} = \frac{1}{|J_{\delta_{20}}|}\left[-(x_1^{(14)} - x_1^{(8)})\frac{\partial}{\partial \xi_1} + (x_1^{(9)} - x_1^{(8)})\frac{\partial}{\partial \xi_2}\right] \end{cases}$$

$$p^{(2)}(\xi) = \xi_1, \quad \frac{\partial p^{(2)}}{\partial \xi_1} = 1, \quad \frac{\partial p^{(2)}}{\partial \xi_2} = 0,$$
$$p^{(1)}(\xi) = 1 - \xi_1 - \xi_2, \quad \frac{\partial p^{(1)}}{\partial \xi_1} = -1, \quad \frac{\partial p^{(1)}}{\partial \xi_2} = -1,$$

$$\underset{QF}{\approx} \left\{\lambda(x_{\delta_{20}}(\xi_*))\left[\frac{1}{|J_{\delta_{20}}|}(x_2^{(14)} - x_2^{(8)})\frac{1}{|J_{\delta_{20}}|}(x_2^{(9)} - x_2^{(8)})\right]\right.$$
$$+ \lambda(x_{\delta_{20}}(\xi_*))\left[\frac{1}{|J_{\delta_{20}}|}(x_1^{(8)} - x_1^{(14)})\frac{1}{|J_{\delta_{20}}|}(x_1^{(14)} - x_1^{(9)})\right]$$
$$\left. + a(x_{\delta_{20}}(\xi_*))\, \frac{1}{3}\cdot\frac{1}{3}\right\} |J_{\delta_{20}}| \cdot \frac{1}{2}$$



$$=: K_{1,2}^{(20)}$$