

Attempt 1

$$\text{In[*]:= } \mathbf{QL} = \mathbf{x}_i (\mathbf{p}_{i+1} - \mathbf{p}_i) + \mathbf{x}_j (\mathbf{p}_{j+1} - \mathbf{p}_j) + (\mathbf{T}^S - \mathbf{1}) \mathbf{x}_i (\mathbf{p}_{i+1} - \mathbf{p}_{j+1})$$

$$\mathbf{QH} = (\mathbf{T}^S - \mathbf{1}) \mathbf{x}_j (\mathbf{p}_{i+1} - \mathbf{p}_{j+1})$$

$$\mathbf{CF}[\mathbf{QL} - \mathbf{QH}]$$

Out[*]=

$$(-\mathbf{p}_i + \mathbf{p}_{1+i}) \mathbf{x}_i + (-\mathbf{1} + \mathbf{T}^S) (\mathbf{p}_{1+i} - \mathbf{p}_{1+j}) \mathbf{x}_i + (-\mathbf{p}_j + \mathbf{p}_{1+j}) \mathbf{x}_j$$

Out[*]=

$$(-\mathbf{1} + \mathbf{T}^S) (\mathbf{p}_{1+i} - \mathbf{p}_{1+j}) \mathbf{x}_j$$

Out[*]=

$$-\mathbf{p}_i \mathbf{x}_i + \mathbf{T}^S \mathbf{p}_{1+i} \mathbf{x}_i + (\mathbf{1} - \mathbf{T}^S) \mathbf{p}_{1+j} \mathbf{x}_i + (\mathbf{1} - \mathbf{T}^S) \mathbf{p}_{1+i} \mathbf{x}_j - \mathbf{p}_j \mathbf{x}_j + \mathbf{T}^S \mathbf{p}_{1+j} \mathbf{x}_j$$

The winning comparison:

$$\text{In[*]:= } \mathbf{QL} = \mathbf{x}_i (\mathbf{p}_{i+1} - \mathbf{p}_i) + \mathbf{x}_j (\mathbf{p}_{j+1} - \mathbf{p}_j) + (\mathbf{T}^S - \mathbf{1}) \mathbf{x}_i (\mathbf{p}_{i+1} - \mathbf{p}_{j+1})$$

$$\mathbf{QH} = (\mathbf{T}^S - \mathbf{1}) \mathbf{x}_i (\mathbf{p}_{i+1} - \mathbf{p}_{j+1})$$

$$\mathbf{CF}[\mathbf{QL} - \mathbf{QH}]$$

Out[*]=

$$(-\mathbf{p}_i + \mathbf{p}_{1+i}) \mathbf{x}_i + (-\mathbf{1} + \mathbf{T}^S) (\mathbf{p}_{1+i} - \mathbf{p}_{1+j}) \mathbf{x}_i + (-\mathbf{p}_j + \mathbf{p}_{1+j}) \mathbf{x}_j$$

Out[*]=

$$(-\mathbf{1} + \mathbf{T}^S) (\mathbf{p}_{1+i} - \mathbf{p}_{1+j}) \mathbf{x}_i$$

Out[*]=

$$-\mathbf{p}_i \mathbf{x}_i + \mathbf{p}_{1+i} \mathbf{x}_i - \mathbf{p}_j \mathbf{x}_j + \mathbf{p}_{1+j} \mathbf{x}_j$$