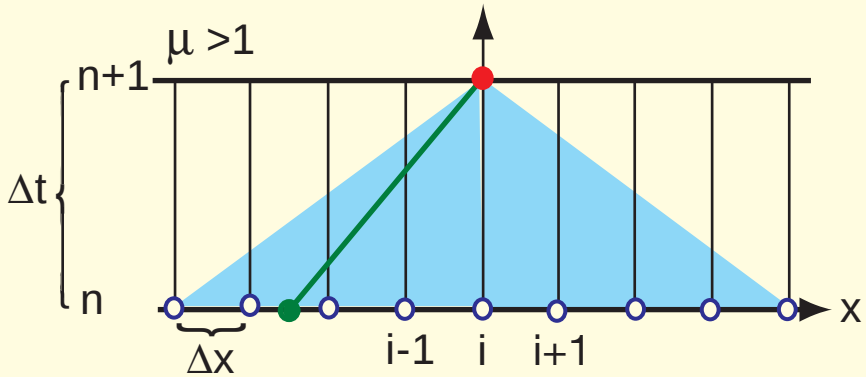
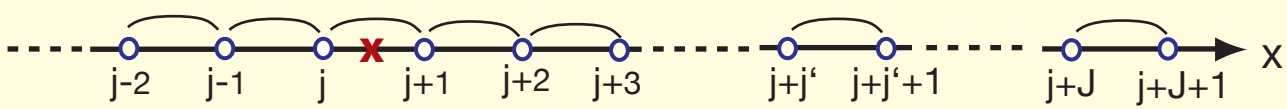
V. Multi-point differencing



Multi-point differencing can be generated through a weighted average,

$$\left(\frac{\partial h}{\partial x}\right)_{j+1/2} \Rightarrow \frac{1}{\Delta x}\sum_{j'=-J}^{J} a_{j'}\left(h_{j+j'+1} - h_{j+j'}\right) \ , \ \text{where} \ \sum_{j'-J}^{J} a_{j'} = 1.$$