Solving for closure relations

$$Y^+_{0+\frac{1}{2}} = \left(\frac{1+3\alpha^+}{2}\right)Y^+_R + \left(\frac{1-3\alpha^+}{2}\right)Y^+_L \quad \leftarrow \overset{\text{moment, not}}{\text{edge}}$$

$$\Rightarrow Y^+_{i+\frac{1}{2}} = \frac{Y_R + Y_L}{2} + \frac{3}{2}\alpha^+(Y_R - Y_L)$$

$$\Rightarrow \alpha^+ = \frac{Y^+_{0+\frac{1}{2}} - \left(\frac{Y_R+Y_L}{2}\right)}{\frac{3}{2}(Y_R - Y_L)} = \frac{Y^+_{0+\frac{1}{2}} - Y_a}{Y_x}$$

○ For scale avg:

$$Y^+_{0+\frac{1}{2}} = \alpha Y_a + Y_x$$

$$\alpha = \frac{Y^+_{i+\frac{1}{2}} - Y^+_x}{Y_a} = \frac{Y^+_{i+\frac{1}{2}} - \frac{3}{2}(Y_R - Y_L)}{\frac{1}{2}(Y_L + Y_R)}$$

○ For minus

$$Y^-_{i+\frac{1}{2}} = Y_a - Y_x \alpha \Rightarrow \alpha = \frac{Y^-_{0+\frac{1}{2}} - Y_a}{(-Y^-_x)}$$