VIII

Let's have a look at the differences between

$$\boxed{\begin{aligned} \bar{n}_1 &= (2x_1+1)y_1 - \Delta_1 \\ \text{and} \quad \bar{n}_1' &= (2x_1+1)y_1' - \Delta x_{1/2}\Delta_1 \end{aligned}}$$

Example: $x_1 = 1$, $\Delta x_{1/2} = 1$

$$\Rightarrow \quad \bar{n}_1 = 3y_1 - \Delta_1$$

$$\bar{n}_1' = 3y_1' - \Delta_1$$

Be $\Delta_1 = 1$: $\bar{n}_1 = 3 \cdot y_1 - 1$, $y_1 = 1 \Rightarrow \bar{n}_1 = 3 - 1 = 2$

$$y_1' = y_1 + \frac{\Delta_1(-1+\Delta x_{1/2})}{2x_1+1}$$

$$= 1 + \frac{1\cdot(-1+1)}{2\cdot 1+1}$$

$$= 1 + 0$$

$$y' = 1$$

Example: $x_1 = 1$ $\Delta x_{1/2} = 2$

$$\Rightarrow \quad \bar{n}_1 = 3y_1 - \Delta_1$$

$$\bar{n}_1' = 3y_1' - 2\Delta_1$$

Be $\Delta_1 = 1$: $y_1 = 2 \Rightarrow \bar{n}_1 = 3 \cdot 2 - 1 = 6 - 1 = 5$

$$y_1' = y_1 + \frac{\Delta_1(-1+\Delta x_{1/2})}{2\cdot x_1+1}$$

$$= 2 + \frac{1\cdot(-1+2)}{3}$$

$$y_1' = 2 + \frac{1}{3}$$

$\Rightarrow$ So, we see, if we use the same Δ_1 in both equations, we get a not integer y_1'.

Let's do $y_1' = \lfloor 2 + 1/3 \rfloor = 2$, $\Delta_1 = 1$

$$\Rightarrow \quad \bar{n}_1' = 3 \cdot 2 - 2 \cdot 1 = 6 - 2 = 4$$

For which values do we get $\bar{n}_1' = 5$?

$$5 = 3y_1' - 2\Delta_1 = \begin{cases} y_1' = 2,\ \Delta_1 = 1 \\ \Rightarrow 3\cdot 2 - 2\cdot 1 = 6 - 2 = 4 \end{cases}$$