$x_2 > x_1$: $x_2 = x_1 + \Delta x_{12}$

$\Leftrightarrow \quad x_1 = x_2 - \Delta x_{12}$

$\vec{n}_1' = (2x_1+1)(2u_1+1) - 2\Delta x_{12}\Delta_1$

$\vec{n}_2' = (2x_2+1)(2u_2+1) - 2\Delta x_{12}\Delta_2$

$\Leftrightarrow$

$0 = (2x_2+1)(2u_2+1) - (2x_1+1)(2u_1+1) - 2\Delta x_{12}\Delta_2 + 2\Delta x_{12}\Delta_1$

$0 = (2x_1+1)(2u_2+1) + 2\Delta x_{12}(2u_2+1) - (2x_1+1)(2u_1+1) + 2\Delta x_{12}(-\Delta_2+\Delta_1)$

$(2x_1+1)(2u_1+1) = (2x_1+1)(2u_2+1) + 2\Delta x_{12}(2u_2+1) + 2\Delta x_{12}(-\Delta_2+\Delta_1)$

$2u_1+1 = 2u_2+1 + \dfrac{2\Delta x_{12}(2u_2+1) + 2\Delta x_{12}(-\Delta_2+\Delta_1)}{2x_1+1}$

$2u_1+1 = 2u_2+1 + 2\Delta x_{12}\underbrace{\dfrac{(2u_2+1)+(-\Delta_2+\Delta_1)}{2x_1+1}}_{(*)}$

$\Rightarrow$ Be $u_2 = (-\Delta_2+\Delta_1+\alpha)\beta+\gamma$

$(*) = \dfrac{2((-\Delta_2+\Delta_1+\alpha)\beta+\gamma) + (-\Delta_2+\Delta_1)}{2x_1+1}$

$= \dfrac{2(-\Delta_2+\Delta_1)\beta + 2\alpha\beta + 2\gamma + (-\Delta_2+\Delta_1)}{2x_1+1}$

$= (-\Delta_2+\Delta_1)\dfrac{2\beta+1}{2x_1+1} + \dfrac{2\alpha\beta+2\gamma}{2x_1+1}$

$\Rightarrow \gamma = \frac{1}{2}$

$\Rightarrow \alpha = 1$

$= (-\Delta_2+\Delta_1)\dfrac{2\beta+1}{2x_1+1} + \dfrac{2\cdot\beta+1}{2x_1+1}$

$\beta = 2x_1y + x_1 + y$

$= \dfrac{(2\beta+1)(-\Delta_2+\Delta_1+1)}{2x_1+1} = \dfrac{(2\cdot(2x_1y+x_1+y)+1)(-\Delta_2+\Delta_1+1)}{2x_1+1}$

$= (2y+1)(-\Delta_2+\Delta_1+1)$

$\Rightarrow$

$u_2 = (-\Delta_2+\Delta_1+1)\cdot(2x_1y+x_1+y) + \frac{1}{2}$