~~Be~~

$$\cancel{x_1 = x_2 + \Delta x_{1,2}, \quad \Delta x_{1,2} \in \mathbb{Z}^-, \quad x_2 > x_1}$$

$$\cancel{0 = (2x_2+1)(2u_2+1) + 2\Delta x_{1,2}\Delta_2}$$

$$\cancel{- (2x_2+1)(2u_1+1)}$$

$$\boxed{x_1 = x_2 - \Delta x_{1,2}}$$

$$0 = (2x_2+1)(2u_2+1) - 2\Delta x_{1,2}\Delta_2$$

$$- (2x_2+1)(2u_1+1) + 2\Delta x_{1,2}(2u_1+1) + 2\Delta x_{1,2}\Delta_1$$

$$\boxed{\text{Be } (2x_2+1) = (2x_1+1)(2x_1'+1)}$$

$$0 = \overset{(2x_1+1)(2x_1'+1)}{\cancel{(2x_2+1)}}(2u_2+1) - 2\Delta x_{1,2}\Delta_2$$

$$- (2x_1+1)(2x_1'+1)(2u_1+1) + 2\Delta x_{1,2}(2u_1+1) + 2\Delta x_{1,2}\Delta_1$$

$$(2x_1+1)(2x_1'+1)(2u_1+1)$$

$$\cancel{= (2x_2+1)(2u_2+1) - 2\Delta x_{1,2}}$$

$$= (2x_1+1)(2x_1'+1)(2u_2+1) - 2\Delta x_{1,2}\Delta_2$$

$$+ 2\Delta x_{1,2}(2u_1+1) + 2\Delta x_{1,2}\Delta_1$$

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

$$\boxed{\text{Be } u_1 = (-\Delta_2+\Delta_1+\alpha)(\underbrace{2x_1x_1'+x_1+x_1'}_{x_2}) + \gamma}$$

$$\Rightarrow 2u_1+1 = (2u_2+1) + 2\Delta x_{1,2}\frac{(-\Delta_2+\Delta_1) + 2\cdot(-\Delta_2+\Delta_1+\alpha)(2x_1x_1'+x_1+x_1') + 2\gamma+1}{(2x_1+1)(2x_1'+1)}$$

$$= (2u_2+1) + 2\Delta x_{1,2}\frac{(-\Delta_2+\Delta_1) + 2\cdot(-\Delta_2+\Delta_1)(2x_1x_1'+x_1+x_1') + 2\alpha(2x_1x_1'+x_1+x_1')}{(2x_1+1)(2x_1'+1)}$$

$$+ \frac{2\gamma+1}{(2x_1+1)(2x_1'+1)}$$

$$= (2u_2+1) + 2\Delta x_{1,2}(-\Delta_2+\Delta_1)\frac{1+2(2x_1x_1'+x_1+x_1')}{(2x_1+1)(2x_1'+1)}$$

$$+ 2\Delta x_{1,2}\frac{2\alpha(2x_1x_1'+x_1+x_1') + 2\gamma+1}{(2x_1+1)(2x_1'+1)}$$

$(2x_1+1)(2x_1'+1)$

$= 2\cdot(2x_1x_1'+x_1+x_1')+1$

$$= (2u_2+1) + 2\Delta x_{1/2}(-\Delta_2+\Delta_1)\cdot 1$$

$$+ 2\Delta x_{1/2}\frac{2\cdot\alpha(2x_1x_1'+x_1+x_1')+2\gamma+1}{(2x_1+1)(2x_1'+1)} \quad \Rightarrow \alpha=1 \quad \Rightarrow \gamma=0$$

$$= (2u_2+1) + 2\Delta x_{1/2}(-\Delta_2+\Delta_1) + 2\Delta x_{1/2}\cdot 1$$

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

$$\Rightarrow \boxed{u_1 = (-\Delta_2+\Delta_1+1)\underbrace{(2x_1x_1'+x_1+x_1')}_{=\left[(2x_1+1)(2x_1'+1)\frac{1}{2}-1\right]}}$$

$$\boxed{\text{Be } u_1 = (-\Delta_2+\Delta_1+\alpha)(2x_1y_1+x_1+y_1)+\gamma}$$

$$\Rightarrow 2u_1+1 = (2u_2+1)+2\Delta x_{1/2}\frac{(-\Delta_2+\Delta_1)+2\cdot(-\Delta_2+\Delta_1+\alpha)(2x_1y_1+x_1+y_1)+2\gamma+1}{(2x_1+1)(2x_1'+1)}$$

$$= (2u_2+1)+2\Delta x_{1/2}\frac{(-\Delta_2+\Delta_1)+2\cdot(-\Delta_2+\Delta_1)(2x_1y_1+x_1+y_1)+2\alpha(2x_1y_1+x_1+y_1)+2\gamma+1}{(2x_1+1)(2x_1'+1)}$$

$$= (2u_2+1)+2\Delta x_{1/2}(-\Delta_2+\Delta_1)\frac{1+2\cdot(2x_1y_1+x_1+y_1)}{(2x_1+1)(2x_1'+1)}$$

$$+2\Delta x_{1/2}\frac{2\alpha(2x_1y_1+x_1+y_1)+2\gamma+1}{(2x_1+1)(2x_1'+1)}$$

$$= (2u_2+1)+2\Delta x_{1/2}(-\Delta_2+\Delta_1)\frac{2\cdot((2x_1+1)(2y_1+1)-1)\frac{1}{2}+1}{(2x_1+1)(2x_1'+1)}$$

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

$$= (2u_2+1) + 2\Delta x_{1,2}\,(-\Delta_2+\Delta_1)\,\frac{(2x_1+1)(2y_1+1)-1+1}{(2x_1+1)(2x_1'+1)}$$

$$+ 2\Delta x_{1,2}\,\frac{\alpha\,(2x_1+1)(2y_1+1)+2\gamma+1-\alpha}{(2x_1+1)(2x_1'+1)}$$

$\boxed{\text{Be } \gamma=0 \text{ and } \alpha=1}$

$$= (2u_2+1) + 2\Delta x_{1,2}\,(-\Delta_2+\Delta_1)\,\frac{\cancel{(2x_1+1)}(2y_1+1)}{\cancel{(2x_1+1)}(2x_1'+1)}$$

$$+ 2\Delta x_{1,2}\,\frac{\cancel{(2x_1+1)}(2y_1+1)}{\cancel{(2x_1+1)}(2x_1'+1)}$$

$$= (2u_2+1) + 2\Delta x_{1,2}\,(-\Delta_2+\Delta_1)\,\frac{2y_1+1}{2x_1'+1} + 2\Delta x_{1,2}\,\frac{2y_1+1}{2x_1'+1}$$

$$= (2u_2+1) + 2\Delta x_{1,2}\,\frac{2y_1+1}{2x_1'+1}\,(-\Delta_2+\Delta_1+1)$$

$$x_1 = x_2 - \Delta x_{1,2} \qquad x_1+\Delta x_{1,2} = x_2 = \left((2x_1+1)(2x_1'+1)-1\right)\tfrac{1}{2}$$

$$\Delta x_{1,2} = x_2 - x_1$$

$$= (2u_2+1) + 2\cdot(x_2-x_1)\,\frac{2y_1+1}{2x_1'+1}\,(-\Delta_2+\Delta_1+1)$$

$$= (2u_2+1) + 2\cdot\left[\left((2x_1+1)(2x_1'+1)-1\right)\tfrac{1}{2} - x_1\right]\frac{2y_1+1}{2x_1'+1}\,(-\Delta_2+\Delta_1+1)$$

$$= (2u_2+1) + \left[(2x_1+1)(2x_1'+1)-1-2x_1\right]\frac{2y_1+1}{2x_1'+1}\,(-\Delta_2+\Delta_1+1)$$

$$= (2u_2+1) + \frac{(2x_1+1)\cancel{(2x_1'+1)}(2y_1+1)-(2x_1+1)(2y_1+1)}{\cancel{2x_1'+1}}\,(-\Delta_2+\Delta_1+1)$$

$$= (2u_2+1) + \left[(2x_1+1)(2y_1+1) - \frac{(2x_1+1)(2y_1+1)}{2x_1'+1}\right]\cdot(-\Delta_2+\Delta_1+1)$$

$$= (2u_2+1) + (2x_1+1)(2y_1+1)\cdot(-\Delta_2+\Delta_1+1)$$

$$\underbrace{-\frac{(2x_1+1)(2y_1+1)}{2x_1'+1}}$$

$$-\frac{(2x_1+1)\cancel{(2x_1'+1)}(2\hat{y}_1+1)}{\cancel{2x_1'+1}}$$

$$= -(2x_1+1)(2\hat{y}_1+1)$$

Be $y_1 = 2x_1'\hat{y}_1 + x_1' + \hat{y}_1$

$= \left((2x_1'+1)(2\hat{y}_1+1)-1\right)\tfrac{1}{2}$

~~[illegible]~~

$2y_1+1 = (2x_1'+1)(2\hat{y}_1+1)$

$= 2(2x_1'\hat{y}_1' + x_1' + \hat{y}_1)+1$

$$\Rightarrow u_2 = (-\Delta_2 + \Delta_1 + 1)\left(2x_1(2x_1'\tilde{y}_1 + x_1' + \tilde{y}_1) + x_1 + (2x_1'\tilde{y}_1 + x_1' + \tilde{y}_1)\right)$$

$\tilde{y}_1 \in \mathbb{N}$

$$= (-\Delta_2 + \Delta_1 + 1)\left(2^2 x_1 x_1' \tilde{y}_1 + 2 x_1 x_1' + 2\tilde{y}_1 + x_1 + 2x_1'\tilde{y}_1 + x_1' + \tilde{y}_1\right)$$

$$u_2 = (-\Delta_2 + \Delta_1 + 1)\left(2^2 x_1 x_1' \tilde{y}_1 + 2x_1 x_1' + 3\tilde{y}_1 + 2x_1'\tilde{y}_1 + x_1 + x_1'\right)$$

$$= (-\Delta_2 + \Delta_1 + 1)(2x_1 y_1 + x_1 + y_1)$$

$$= (-\Delta_2 + \Delta_1 + 1)\left((2x_1 + 1)(2y_1 + 1) - 1\right)\frac{1}{2}$$

$$= (-\Delta_2 + \Delta_1 + 1)\left[(2x_1 + 1)\left(\cancel{2}\left((2x_1' + 1)(2\tilde{y}_1 + 1) - 1\right)\cancel{\tfrac{1}{2}} + 1\right) - 1\right]\frac{1}{2}$$

$$= (-\Delta_2 + \Delta_1 + 1)\left[(2x_1 + 1)\left((2x_1' + 1)(2\tilde{y}_1 + 1) \cancel{- 1} \cancel{+ 1}\right) - 1\right]\frac{1}{2}$$

$$K_2 = (-\Delta_2 + \Delta_1 + 1)\left[(2x_1 + 1)(2x_1' + 1)(2\tilde{y}_1 + 1) - 1\right]\frac{1}{2}$$