$$\mathcal{A}_{(3)} = \prod_{e_1=1}^{n-1}(2x_{e_1}+1)\left(\sum_{u_1=1}^{n}(-1)^{u_1}\Delta_{u_1}\right)x_n - \Delta x_{1\dots n-1,n}\,\Delta_{1\dots n}$$

$$= \cancel{\prod_{e_1=1}^{n-1}(2x_{e_1}+1)\left\{\sum_{u_1=1}^{n}(-1)^{u_1}\Delta_{u_1}\cdot\prod_{e_2=1}^{n-1}(2x_{e_2}+1)\right.}$$

$$= \prod_{e_1=1}^{n-1}(2x_{e_1}+1)\Bigg\{\underbrace{-\Delta_n}_{①}\underbrace{-\prod_{e_2=1}^{n-2}(2x_{e_2}+1)\left(\sum_{u_1=1}^{n-1}(-1)^{u_1+1}\Delta_{u_1}\right)x_{n-1}}_{②} - \Delta x_{1\dots n-2,n-1}\Delta_1\Bigg\}x_n$$

$$- \Delta x_{1\dots n-1,n}\left\{-\prod_{e_2=1}^{n-2}(2x_{e_2}+1)\left(\sum_{u_1=1}^{n-1}(-1)^{u_1+1}\Delta_{u_1}\right)x_{n-1} - \Delta x_{1\dots n-2,n-1}\Delta_1\right\}$$

$$= \cancel{\prod_{e_1=1}^{n-1}(2x_e+1)\left\{\sum_{u_2=1}^{n}(-1)^{u_2}\Delta_{u_2}\right.}$$

$$\cancel{\prod_{e_2=1}^{n-1}(2x_{e_2}+1)}$$

$$① \quad \prod_{e=1}^{n-3}(2x_e+1)\left(\sum_{u=n}^{n}(-1)^{u}\Delta_u\right)$$

$$\Rightarrow \left\{\underbrace{\prod_{e_2=1}^{n-3}(2x_{e_2}+1)\left(\sum_{u_1=n}^{n}(-1)^{u_1}\Delta_{u_1}\right)}_{①} + \underbrace{\prod_{e_3=1}^{n-2}(2x_{e_3}+1)\left(\sum_{u_2=1}^{n-1}(-1)^{u_2}\Delta_{u_2}\right)\cdot x_{n-1}}_{②}\right.$$

$$= \sum_{i=2}^{n}\prod_{e=1}^{n-i}(2x_e+1)\left(\sum_{\substack{u=\cancel{n-i}\\ u=\cancel{i-1}}}^{\cancel{n-1}\ \cancel{i}}(-1)^{u}\Delta_u\right)$$

$n-i+1$ Elemente