$$ {}_{e}\underset{\omega}{\Subset}|_{\mho}\mathbb{I} = \underset{\omega}{\Subset}^{O}_{1}|_{\mho}\mathbb{I}\times\underset{\omega}{\Subset}^{O}_{-}|_{\mho}\mathbb{I}\times\sum_{1\leqslant i<j\leqslant r}\underset{\omega}{\Subset}^{\varkappa}_{j-i}|_{\mho}\mathbb{I}\times\sum_{0\leqslant i\leqslant j\leqslant r}\underset{\omega}{\Subset}^{1}_{j+i}|_{\mho}\mathbb{I} $$

$$ e\cdot X_a^{\varkappa} = a - e\overset{*}{a}e + \varkappa|\{i{:}j\}|\left(e\overset{*}{a}e_j - e\overset{*}{e}_j a\right) = \begin{cases} a-\overset{*}{a}+2\varkappa\,(\overset{*}{a}/2-a/2)=(1-\varkappa)\,(1-\varepsilon)\,a & 1\leqslant i<j\leqslant r\\ a-\overset{*}{a}+\varkappa\,(\overset{*}{a}-a)=(1-\varkappa)\,(1-\varepsilon)\,a & 1\leqslant i=j\leqslant r\\ a+2\varkappa\,(-a/2)=(1-\varkappa)\,a & 0=i<j\leqslant r\end{cases} $$

$$ e\delta = \sum_k e_k\delta = 0 $$

$$ e_k - e\overset{*}{e}_k e = e_k - e_k = 0 $$

$$ \underbrace{\ltimes A}_{\mathcal{G}_e} = -\frac{2n}{r}\tau\,(e\cdot d_e A) $$

$$ A = \sum_k \lambda^k X^-_{e_k} \Rightarrow \underbrace{\ltimes A}_{\mathcal{G}_e} = \underbrace{\ltimes\sum_k\lambda^k\overbrace{e_k-\overset{*}{e}_k}}_{\mathcal{G}_e} = \frac{2n}{r}\sum_j\lambda^j $$

$$ \text{LHS} = \sum_k\lambda^k\underbrace{\ltimes\overbrace{e_k-\overset{*}{e}_k}}_{\mathcal{G}_e} = \pm\sum_{1\leqslant i<j\leqslant j} a\underbrace{\lambda^j-\lambda^i} + \sum_{1\leqslant i<j\leqslant r} a\underbrace{\lambda^j+\lambda^i} + \sum_{1\leqslant j\leqslant r}\underbrace{2\lambda^j+2b\lambda^j} $$

$$ = \sum_{1\leqslant i<j\leqslant r} a\underbrace{\lambda^j+\lambda^i} + \sum_{1\leqslant j\leqslant r} 2\,(1+b)\,\lambda^j = a\begin{bmatrix}\lambda^2+\lambda^1+\lambda^3+\lambda^1+\cdots+\lambda^r+\lambda^1\\ \lambda^3+\lambda^2+\cdots+\lambda^r+\lambda^2\\ \lambda^r+\lambda^{r-1}\end{bmatrix} + 2\,(1+b)\sum_{1\leqslant j\leqslant r}\lambda^j = $$

$$ = \sum_j\lambda^j\,(a\,(r-1)+2\,(1+b)) = \text{RHS} $$

$$ d_e A = -\sum_k\lambda^k z\overset{*}{e}_k e \Rightarrow e\cdot d_e A = -\sum_k\lambda^k e_k\underbrace{\ltimes\sum_k\lambda^k\overbrace{e_k-\overset{*}{e}_k}}_{\mathcal{G}_e} = \frac{2n}{r}\sum_j\lambda^j $$

$$ \Delta_G\,(g) = \Delta\,(e\cdot d_e g)^{2n/r} $$