$$\underset{x}{\underbrace{\neq \mathsf{J}}} \underset{\text{Weyl}}{=} \left(\frac{4\nu}{\pi}\right)^{d} \int_{dz}^{\mathbb{C}_d} {}_z\mathsf{J}\ {}^{z|\bar z|x}_{\nu}\boxed{\mathfrak{e}}^{\begin{array}{c|c|c}1&0&-1\\\hline 0&-1&1\\\hline -1&1&0\end{array}}_{\bar z|z|x} = \left(\frac{4\nu}{\pi}\right)^{d} \int_{dz}^{\mathbb{C}_d} {}_z\mathsf{J}\ {}^{z-x}\mathfrak{e}^{\nu}_{\bar z-x}\ {}^{\bar z-x}\mathfrak{e}^{-\nu}_{z-x}$$

$$\underset{\xi}{\underbrace{\sharp\mathsf{J}}} \underset{\text{Up}}{\overset{\text{Ar}}{=}} \left(\frac{2\nu\,(1-\alpha)}{\pi}\right)^{d} \left(\frac{1-\gamma}{\alpha^2-\gamma}\right)^{d/2} \int_{d\zeta}^{\mathbb{C}_d} {}_\zeta\mathsf{J}\ {}^{\zeta|\bar\zeta|\xi}_{\nu}\boxed{\mathfrak{e}}^{\begin{array}{c|c|c}-A&-B&A+B\\\hline -B&-D&B+D\\\hline A+B&B+D&-A-2B-D\end{array}}_{\bar\zeta|\zeta|\xi}$$

$$\overbrace{\neq \underbrace{E_\alpha \bowtie \mathsf{J}}}^{x} = \left(\frac{4\nu}{\pi}\right)^{d} \left(\frac{(1-\alpha)^2}{2\left(1+\alpha^2\right)}\right)^{d/2} \int_{d\zeta}^{\mathbb{C}_d} {}_\zeta\mathsf{J}\ {}^{\zeta|\bar\zeta|x}_{\frac{\nu(1-\alpha)}{2(1+\alpha^2)}}\boxed{\mathfrak{e}}^{\begin{array}{c|c|c}1-\alpha&-(1+\alpha)&2\alpha\\\hline -(1+\alpha)&\alpha-1&2\\\hline 2\alpha&2&-2(1+\alpha)\end{array}}_{\bar\zeta|\zeta|x}$$

$$\text{LHS} = \left(\frac{4\nu}{\pi}\right)^{d} \int_{dz}^{\mathbb{C}_d} {}_z\underbrace{E_\alpha \bowtie \mathsf{J}}\ {}^{z|\bar z|x}_{\nu}\boxed{\mathfrak{e}}^{\begin{array}{c|c|c}1&0&-1\\\hline 0&-1&1\\\hline -1&1&0\end{array}}_{\bar z|z|x} = \underbrace{\left(\frac{4\nu}{\pi}\right)^{d} \int_{d\zeta}^{\mathbb{C}_d} {}_\zeta\mathsf{J}}_{=*} \left(\frac{2\nu\tilde\alpha}{\pi}\right)^{d} \int_{dz}^{\mathbb{C}_d} {}^{z-\zeta}_{2\nu}\mathfrak{e}^{-\tilde\alpha}_{z-\zeta}\ {}^{z|\bar z|x}_{\nu}\boxed{\mathfrak{e}}^{\begin{array}{c|c|c}1&0&-1\\\hline 0&-1&1\\\hline -1&1&0\end{array}}_{\bar z|z|x}$$

$$= *\,\tilde\alpha^{d}\ {}^{\zeta}_{2\nu}\mathfrak{e}^{-\tilde\alpha}_{\zeta} \left(\frac{2\nu}{\pi}\right)^{d} \int_{dz}^{\mathbb{C}_d} {}^{z|\bar z}_{-\nu}\boxed{\mathfrak{e}}^{\begin{array}{c|c}-1&\tilde\alpha\\\hline \tilde\alpha&1\end{array}}_{\bar z|z}\ {}^{\zeta|\bar\zeta|x}_{2\nu}\boxed{\mathfrak{e}}^{\begin{array}{c|c}0&\tilde\alpha\\\hline \tilde\alpha&0\\\hline -1&1\end{array}}_{\bar z|z} \underset{=}{\text{Gauss}} *\,\tilde\alpha^{d}\ {}^{\zeta}_{2\nu}\boxed{\mathfrak{e}}^{-\tilde\alpha}_{\zeta} \left(\frac{1}{1+\tilde\alpha^2}\right)^{d/2} {}^{\zeta|\bar\zeta|x}_{\frac{\nu}{1+\tilde\alpha^2}}\boxed{\mathfrak{e}}^{\begin{array}{c|c}0&\tilde\alpha\\\hline \tilde\alpha&0\\\hline -1&1\end{array}\begin{array}{c|cc|c|c}-1&\tilde\alpha&0&\tilde\alpha&-1\\ \tilde\alpha&1&\tilde\alpha&0&1\end{array}}_{\bar\zeta|\zeta|x}$$

$$= *\left(\frac{\tilde\alpha^2}{1+\tilde\alpha^2}\right)^{d/2} {}^{\zeta|\bar\zeta|x}_{\frac{\nu}{1+\tilde\alpha^2}}\boxed{\mathfrak{e}}^{\begin{array}{c|c|c}\tilde\alpha^2&\tilde\alpha^3-\tilde\alpha\left(1+\tilde\alpha^2\right)&\tilde\alpha\left(1-\tilde\alpha\right)\\\hline \tilde\alpha^3-\tilde\alpha\left(1+\tilde\alpha^2\right)&-\tilde\alpha^2&\tilde\alpha\left(1+\tilde\alpha\right)\\\hline \tilde\alpha\left(1-\tilde\alpha\right)&\tilde\alpha\left(1+\tilde\alpha\right)&-2\tilde\alpha\end{array}}_{\bar\zeta|\zeta|x} = \text{RHS} \Leftarrow 1+\tilde\alpha^2 = \frac{2\left(1+\alpha^2\right)}{(1+\alpha)^2}$$

$$M = A + 2B + D + \widetilde{\gamma}$$

$$\overbrace{{}^{x}e_{\gamma} \bowtie \sharp \mathsf{J}} = \left(\frac{2\nu\,(1-\alpha)}{\pi}\right)^{d} \left(\frac{(1-\gamma)\,\widetilde{\gamma}}{(\alpha^2-\gamma)\,M}\right)^{d/2} \int_{d\zeta}^{\mathbb{C}_d} {}_{\zeta}\mathsf{J} \; {}^{\zeta|\bar{\zeta}|x}_{\nu/M}\boxed{\mathfrak{e}}^{\begin{array}{c|c|c} B^2-AD-\widetilde{\gamma}A & AD-B^2-\widetilde{\gamma}B & (A+B)\,\widetilde{\gamma} \\ \hline AD-B^2-\widetilde{\gamma}B & B^2-AD-\widetilde{\gamma}D & (B+D)\,\widetilde{\gamma} \\ \hline \widetilde{\gamma}\,(A+B) & \widetilde{\gamma}\,(B+D) & -\widetilde{\gamma}\,(A+2B+D) \end{array}}_{\bar{\zeta}|\zeta|x}$$

$$\text{LHS} = \int_{d\xi}^{\mathbb{R}_d} {}^{x-\xi}e_{\gamma}\,{}^{\xi}\sharp\mathsf{J} = \left(\frac{2\nu\,(1-\alpha)}{\pi}\right)^{d} \left(\frac{1-\gamma}{\alpha^2-\gamma}\right)^{d/2} \int_{d\xi}^{\mathbb{R}_d} {}^{x-\xi}e_{\gamma} \int_{d\zeta}^{\mathbb{C}_d} {}_{\zeta}\mathsf{J} \; {}^{\zeta|\bar{\zeta}|\xi}_{\nu}\boxed{\mathfrak{e}}^{\begin{array}{c|c|c} -A & -B & A+B \\ \hline -B & -D & B+D \\ \hline A+B & B+D & -A-2B-D \end{array}}_{\bar{\zeta}|\zeta|\xi}$$

$$= \underbrace{\left(\frac{2\nu\,(1-\alpha)}{\pi}\right)^{d} \left(\frac{1-\gamma}{\alpha^2-\gamma}\right)^{d/2} \int_{d\zeta}^{\mathbb{C}_d} {}_{\zeta}\mathsf{J}}_{=*} \left(\frac{\nu\widetilde{\gamma}}{\pi}\right)^{d/2} \int_{d\xi}^{\mathbb{R}_d} {}^{x-\xi}_{\nu}\mathfrak{e}^{-\widetilde{\gamma}}_{x-\xi} \; {}^{\zeta|\bar{\zeta}|\xi}_{\nu}\boxed{\mathfrak{e}}^{\begin{array}{c|c|c} -A & -B & A+B \\ \hline -B & -D & B+D \\ \hline A+B & B+D & -A-2B-D \end{array}}_{\bar{\zeta}|\zeta|\xi}$$

$$= * \, \widetilde{\gamma}^{d/2} \; {}^{x}_{\nu}\mathfrak{e}^{-\widetilde{\gamma}}_{x} \; {}^{\zeta|\bar{\zeta}}_{-\nu}\boxed{\mathfrak{e}}^{\begin{array}{c|c} A & B \\ \hline B & D \end{array}}_{\bar{\zeta}|\zeta} \left(\frac{\nu}{\pi}\right)^{d/2} \int_{d\xi}^{\mathbb{R}_d} {}^{\xi}_{\nu}\mathfrak{e}^{-M}_{\xi} \; {}^{\zeta|\bar{\zeta}|x}_{2\nu}\boxed{\mathfrak{e}}^{\begin{array}{c} A+B \\ \hline B+D \\ \hline \widetilde{\gamma} \end{array}}_{\xi}$$

$$\overset{\text{Gauss}}{=} = * \, \widetilde{\gamma}^{d/2} \, M^{-d/2} \; {}^{x}_{\nu}\mathfrak{e}^{-\widetilde{\gamma}}_{x} \; {}^{\zeta|\bar{\zeta}}_{-\nu}\boxed{\mathfrak{e}}^{\begin{array}{c|c} A & B \\ \hline B & D \end{array}}_{\bar{\zeta}|\zeta} \; {}^{\zeta|\bar{\zeta}|x}_{\nu/M}\boxed{\mathfrak{e}}^{\begin{array}{c} A+B \\ \hline B+D \\ \hline \widetilde{\gamma} \end{array}}_{\bar{\zeta}|\zeta|x} \; A+B \mid B+D \mid \widetilde{\gamma}$$

$$= * \left(\frac{\widetilde{\gamma}}{M}\right)^{d/2} {}^{\zeta|\bar{\zeta}|x}_{\nu/M}\boxed{\mathfrak{e}}^{\begin{array}{c|c|c} (A+B)^2-AM & (A+B)\,(B+D)-BM & (A+B)\,\widetilde{\gamma} \\ \hline (B+D)\,(A+B)-BM & (B+D)^2-DM & (B+D)\,\widetilde{\gamma} \\ \hline \widetilde{\gamma}\,(A+B) & \widetilde{\gamma}\,(B+D) & \widetilde{\gamma}^2-\widetilde{\gamma}M \end{array}}_{\bar{\zeta}|\zeta|x} = \text{RHS}$$

$$\neq \underbrace{E_\alpha \bowtie \mathsf{J}} = e_\gamma \mathbin{⧗} \underbrace{\sharp \mathsf{J}}$$

$$2\left(\alpha^2-\gamma\right)A = \left(1-\alpha\right)^2\gamma: \quad 2\left(\alpha^2-\gamma\right)B = (1-\alpha)(\alpha-\gamma): \quad 2\left(\alpha^2-\gamma\right)D = \left(1-\alpha\right)^2$$

$$2\left(\alpha^2-\gamma\right)(A+2B+D) = (1-\alpha)(1+\alpha)(1-\gamma): \quad 4\left(\alpha^2-\gamma\right)\left(AD-B^2\right) = \left(1-\alpha\right)^2(\gamma-1)$$

$$\frac{2\left(\alpha^2-\gamma\right)M}{1+\alpha^2} = \widetilde{\gamma}\,(1-\gamma)$$

$$4\left(\alpha^2-\gamma\right)\begin{array}{c|c} B^2-AD-\widetilde{\gamma}A & AD-B^2-\widetilde{\gamma}B \\ \hline AD-B^2-\widetilde{\gamma}B & B^2-AD-\widetilde{\gamma}D \end{array} = \underbrace{\widetilde{\gamma}\,(1-\gamma)}_{=4\left(\alpha^2-\gamma\right)\frac{M/2}{1+\alpha^2}} \;(1-\alpha)\begin{array}{c|c} 1-\alpha & -(1+\alpha) \\ \hline -(1+\alpha) & \alpha-1 \end{array}$$

$$\Longrightarrow \begin{array}{c|c|c} B^2-AD-\widetilde{\gamma}A & AD-B^2-\widetilde{\gamma}B & (A+B)\,\widetilde{\gamma} \\ \hline AD-B^2-\widetilde{\gamma}B & B^2-AD-\widetilde{\gamma}D & (B+D)\,\widetilde{\gamma} \\ \hline \widetilde{\gamma}\,(A+B) & \widetilde{\gamma}\,(B+D) & -\widetilde{\gamma}\,(A+2B+D) \end{array} = \frac{(1-\alpha)\,M}{2\left(1+\alpha^2\right)}\begin{array}{c|c|c} 1-\alpha & -(1+\alpha) & 2\alpha \\ \hline -(1+\alpha) & \alpha-1 & 2 \\ \hline 2\alpha & 2 & -2(1+\alpha) \end{array}$$

$$\left(\frac{\overset{d}{4\nu}}{\pi}\right)\left(\frac{\overset{d/2}{\left(1-\alpha\right)^2}}{2\left(1+\alpha^2\right)}\right) = \left(\frac{2\nu\,(\overset{d}{1}-\alpha)}{\pi}\right)\left(\frac{\overset{d/2}{(1-\gamma)\,\widetilde{\gamma}}}{\left(\alpha^2-\gamma\right)M}\right) \Longrightarrow {}^{x}\mathrm{LHS} = {}^{x}\mathrm{RHS}$$

ξ	$\bar{\eta}$	η	$\bar{\xi}$	ζ	$\bar{\zeta}$	
0	$-b$	0	$-a$	0	$a+b$	$\overset{t}{\xi}$
$-b$	0	$-d$	0	$b+d$	0	$\overset{*}{\eta}$
0	$-d$	0	$-c$	0	$c+d$	$\overset{t}{\eta}$
$-a$	0	$-c$	0	$a+c$	0	$\overset{*}{\xi}$
0	$b+d$	0	$a+c$	0	$-a-b-c-d$	$\overset{t}{\zeta}$
$a+b$	0	$c+d$	0	$-a-b-c-d$	0	$\overset{*}{\zeta}$