$$\int_{du}^{\mho X^{\mathbb{C}}} {}^{u}_{\mho}X^{\mathbb{C}}_{\varkappa} \; {}^{e-u}\bar{\Delta}^{\sigma} \; {}^{e-u}\Delta^{\tau} = \frac{\Gamma^X_{d/r}\Gamma^X_{\varkappa+\alpha+d/r}\Gamma^X_{\beta+d/r}}{\Gamma^X_{-\sigma}\Gamma^X_{\sigma+d/r}\Gamma^X_{\varkappa+\alpha+\beta+2d/r}}$$

$$\text{LHS} = \frac{\Gamma^r_{1+a/2}}{\Gamma_{1+ra/2}} \frac{(2\pi)^{d-r}}{\Gamma^X_{-\sigma}\Gamma^X_{\sigma+d/r}} \int_{dx}^{{}_0\overset{\mathbb{R}^r}{\nabla}_1} {}^{x}_{\mho}X^{\mathbb{C}}_{\varkappa} \prod_j x_j^{-\sigma-d/r} \overbrace{1-x_j}^{\sigma+\tau} \prod_{i<j} \overbrace{x_i - x_j}^{a} = \text{RHS}$$

$$\int_{du}^{\mho X^{\mathbb{C}}} {}^{e-u}\Delta^{\sigma} \; {}^{e-u}\bar{\Delta}^{\tau} = \int_{dx}^{X} {}^{e-\underbrace{x-ie}\overbrace{x+ie}^{-1}}\Delta^{\sigma} \; {}^{e-\underbrace{x-ie}\overbrace{x+ie}^{-1}}\bar{\Delta}^{\tau} \; {}^{e+x^2}\Delta^{-d/r} = \int_{dx}^{X} {}^{2i\overbrace{x+ie}^{-1}}\Delta^{\sigma} \; {}^{2i\overbrace{x+ie}^{-1}}\bar{\Delta}^{\tau} \; {}^{e+x^2}\Delta^{-d/r}$$

$$= \int_{dx_i}^{\mathbb{R}^r} \prod_j \overbrace{x_j+i}^{-\sigma} \; \overbrace{x_j-i}^{-\tau} \; \overbrace{1+x_j^2}^{-d/r} \prod_{i<j} \overbrace{x_j-x_i}^{a}$$

$${}^{e-z}\Delta^{\sigma} \; {}^{e-z}\bar{\Delta}^{\tau} = 2^{-\tau n} \prod_j \frac{\Gamma_{\sigma+\tau+j}}{\Gamma_{\sigma+j}} \sum_{\varkappa} \frac{\Gamma^X_{\varkappa-\sigma}}{\Gamma^X_{\varkappa+\tau+n}} d_{\varkappa} \, {}^{x}_{\mho}X^{\mathbb{C}}_{\varkappa} = 2^{-\tau n} \prod_j \frac{\Gamma_{\sigma+\tau+j}}{\Gamma_{\sigma+j}} \sum_{\varkappa} \prod_j \frac{\Gamma_{\varkappa_j-j+1-\sigma}}{\Gamma_{\varkappa_j-j+1+\tau+n}} d_{\varkappa} \, {}^{x}_{\mho}X^{\mathbb{C}}_{\varkappa}$$