$$Q = \{1\cdots q\} \supset I = \{i_1 < \cdots < i_m\} \Longrightarrow \zeta_I = \zeta_{i_1}\cdots\zeta_{i_m}$$

$${}^{1|0}\mathbb{C}_{\nabla p|q}\underset{\omega}{\triangle}\mathbb{C} = \frac{\sum_{I}^{\subset Q} z^{\,}\!\!\!\curlyvee^{I}\zeta_I}{\curlyvee^{I} \in {}^{1}\mathbb{C}_{\nabla p}\underset{\omega}{\triangle}\mathbb{C}} = \sum_{0 \leqslant k \leqslant q} {}^{1}\mathbb{C}_{\nabla p}\underset{\omega}{\triangle}\mathbb{C} \bowtie {}_{q-k}\mathbb{C} \triangledown \mathbb{C}^{q}$$

$${}^{1|0}\mathbb{C}_{\nabla p|q}\underset{\omega}{\overset{2}{\triangle}}\overset{\nu}{\mathbb{C}} = \frac{\curlywedge \in {}^{1|0}\mathbb{C}_{\nabla p|q}\underset{\omega}{\triangle}\mathbb{C}}{\Gamma_\nu \int_{dz/\pi^p}^{{}^{1|0}\mathbb{C}_{\nabla p|q}} \int_{d\zeta}^{{}^{|0}\mathbb{C}_{|q}} \frac{\overbrace{1 - z\overset{*}{z} - \zeta\overset{*}{\zeta}}^{\nu+q-p-1}}{\Gamma_{\nu+q-p}} {}^{z|\zeta}\overset{*}{\curlywedge}{}^{z|\zeta}\curlywedge < +\infty}$$

$$\zeta_L = \zeta_{\ell_1}\cdots\zeta_{\ell_k}$$

$$\overset{*}{\zeta}_L\,\zeta_L = \prod_{\ell}^{L}\bar{\zeta}_\ell\,\zeta_\ell$$

$$\frac{\overbrace{1 - z\overset{*}{z} - \zeta\overset{*}{\zeta}}^{\nu+q-p-1}}{\Gamma_{\nu+q-p}} = \sum_{J}^{\subset Q}\frac{\overbrace{1 - z\overset{*}{z}}^{\nu+|J|-p-1}}{\Gamma_{\nu+|J|-p}}\,\overset{*}{\zeta}_{Q\llcorner J}\,\zeta_{Q\llcorner J}$$

$$\text{LHS} = \frac{\overbrace{1 - z\overset{*}{z}}^{\nu+q-p-1}}{\Gamma_{\nu+q-p}}\overbrace{1 - \frac{\zeta\overset{*}{\zeta}}{1 - z\overset{*}{z}}}^{\nu+q-p-1} = \frac{\overbrace{1 - z\overset{*}{z}}^{\nu+q-p-1}}{\Gamma_{\nu+q-p}}\sum_{\ell}^{\mathbb{N}}\begin{bmatrix}\nu+q-p-1\\ \ell\end{bmatrix}\underbrace{\overbrace{\frac{-\zeta\overset{*}{\zeta}}{1 - z\overset{*}{z}}}^{\ell}}_{=0\,\curvearrowleft\,\ell > q}$$

$$\underset{j=q-\ell}{=}\frac{\overbrace{1 - z\overset{*}{z}}^{\nu+q-p-1}}{\Gamma_{\nu+q-p}}\sum_{j=0}^{q}\begin{bmatrix}\nu+q-p-1\\ q-j\end{bmatrix}\overbrace{\frac{-\zeta\overset{*}{\zeta}}{1 - z\overset{*}{z}}}^{q-j} = \sum_{j=0}^{q}\frac{\overbrace{1 - z\overset{*}{z}}^{\nu+j-p-1}}{\Gamma_{\nu+q-p}}\frac{\Gamma_{\nu+q-p}}{\Gamma_{\nu+j-p}\,(q-j)!}\overbrace{-\zeta\overset{*}{\zeta}}^{q-j}$$

$$= \sum_{j=0}^{q}\frac{\overbrace{1 - z\overset{*}{z}}^{\nu+j-p-1}}{\Gamma_{\nu+j-p}}\frac{1}{(q-j)!}\sum_{|J|=j}^{J\subset Q}(q-j)!\prod_{\ell}^{Q\llcorner J}\underbrace{-\zeta_\ell\bar{\zeta}_\ell}_{=\bar{\zeta}_\ell\zeta_\ell} = \sum_{j=0}^{q}\sum_{|J|=j}^{J\subset Q}\frac{\overbrace{1 - z\overset{*}{z}}^{\nu+j-p-1}}{\Gamma_{\nu+j-p}}\prod_{\ell}^{Q\llcorner J}\bar{\zeta}_\ell\,\zeta_\ell = \text{RHS}$$

$$\sum_{K}^{\subset Q} \daleth^{I}\,\zeta_{I} \ni {}^{1|0}\mathbb{C}_{\nabla p|q}\overset{2}{\underset{\omega}{\triangleright}}\check{\mathbb{C}}^{\nu} \xleftarrow{\asymp} {}^{1|0}\mathbb{C}_{\nabla p|q}\overset{2}{\underset{\omega}{\triangleright}}\check{\mathbb{C}}^{\nu} = \sum_{0\leqslant k\leqslant q} {}^{1}\mathbb{C}_{\nabla p}\overset{2}{\underset{\omega}{\triangleright}}\mathbb{C}^{\nu+k} \bowtie \mathbb{C}_{q-k} \triangleleft \mathbb{C}^{q} = \sum_{K}^{\subset Q} {}^{1}\mathbb{C}_{\nabla p}\overset{2}{\underset{\omega}{\triangleright}}\mathbb{C}^{\nu+|K|} \ni \daleth^{K}$$

$$\daleth^{J}\,\zeta_{J} \underset{\nu}{\ltimes} \gimel^{J}\,\zeta_{J} = \sum_{K}^{\subset Q} \frac{\Gamma_{\nu}}{\Gamma_{\nu+|K|}}\, \daleth^{K} \underset{\nu+|K|}{\ltimes} \gimel^{K}$$

$$\text{LHS} = \int_{dz/\pi^p\, d\zeta}^{\left({}^{1|0}\mathbb{C}_{\nabla p|q}\right)} \frac{\overbrace{1 - z\overset{*}{z} - \zeta\overset{*}{\zeta}}^{\nu+q-p-1}}{\Gamma_{\nu+q-p}}\,\Gamma_{\nu}\, \overbrace{{}^{z}\daleth^{I}\zeta_{I}}^{*}\; {}^{z}\gimel^{J}\,\zeta_{J} = \int_{dz/\pi^p\, d\zeta}^{\left({}^{1|0}\mathbb{C}_{\nabla p|q}\right)} \frac{\overbrace{1 - z\overset{*}{z} - \zeta\overset{*}{\zeta}}^{\nu+q-p-1}}{\Gamma_{\nu+q-p}}\,\Gamma_{\nu}\, {}^{z}\overset{*}{\daleth}{}^{I}\; {}^{z}\gimel^{J}\; \overset{*}{\zeta}_{I}\,\zeta_{J}$$

$$= \sum_{K}^{\subset Q} \int_{dz/\pi^p}^{{}^{1}\mathbb{C}_{\nabla p}} \frac{\overbrace{1 - z\overset{*}{z}}^{\nu+|K|-p-1}}{\Gamma_{\nu+|K|-p}}\,\Gamma_{\nu} \int_{d\zeta}^{{}^{|0}\mathbb{C}_{|q}} \overset{*}{\zeta}_{Q\llcorner K}\,\zeta_{Q\llcorner K}\; {}^{z}\overset{*}{\daleth}{}^{I}\; {}^{z}\gimel^{J}\; \overset{*}{\zeta}_{I}\,\zeta_{J}$$

$$\overset{I \equiv K}{\underset{J = K}{=}} \sum_{K}^{\subset Q} \int_{dz/\pi^p}^{{}^{1}\mathbb{C}_{\nabla p}} \frac{\overbrace{1 - z\overset{*}{z}}^{\nu+|K|-p-1}}{\Gamma_{\nu+|K|-p}}\,\Gamma_{\nu}\, {}^{z}\overset{*}{\daleth}{}^{K}\; {}^{z}\gimel^{K} \underbrace{\int_{d\zeta}^{{}^{|0}\mathbb{C}_{|q}} \overset{*}{\zeta}_{Q\llcorner K}\zeta_{Q\llcorner K}\overset{*}{\zeta}_{K}\zeta_{K}}_{= \int_{d\zeta}^{{}^{|0}\mathbb{C}_{|q}} \overset{*}{\zeta}_{Q}\zeta_{Q} = 1} = \sum_{K}^{\subset Q} \int_{dz/\pi^p}^{{}^{1}\mathbb{C}_{\nabla p}} \frac{\overbrace{1 - z\overset{*}{z}}^{\nu+|K|-p-1}}{\Gamma_{\nu+|K|-p}}\,\Gamma_{\nu}\, {}^{z}\overset{*}{\daleth}{}^{K}\; {}^{z}\gimel^{K}$$

$$= \sum_{K}^{\subset Q} \frac{\Gamma_{\nu}}{\Gamma_{\nu+|K|}} \int_{dz/\pi^p}^{{}^{1}\mathbb{C}_{\nabla p}} \frac{\overbrace{1 - z\overset{*}{z}}^{\nu+|K|-p-1}}{\Gamma_{\nu+|K|-p}}\,\Gamma_{\nu+|K|}\; {}^{z}\overset{*}{\daleth}{}^{K}\; {}^{z}\gimel^{K} = \text{RHS}$$

$$\frac{\Gamma_{\nu}}{\underbrace{1 - z\overset{*}{w} - \zeta\overset{*}{\omega}}_{\nu}} = \sum_{I}^{\subset Q} \frac{\Gamma_{\nu+|I|}}{\underbrace{1 - z\overset{*}{w}}_{\nu+|I|}} \prod_{i}^{I} \zeta_{i}\,\bar{\omega}_{i}$$

$$\text{LHS} = \frac{\Gamma_{\nu}}{\underbrace{1 - z\overset{*}{w}}_{\nu}} \overbrace{1 - \frac{\zeta\overset{*}{\omega}}{1 - z\overset{*}{w}}}^{-\nu} = \frac{\Gamma_{\nu}}{\underbrace{1 - z\overset{*}{w}}_{\nu}} \sum_{i}^{\mathbb{N}} \begin{bmatrix} -\nu \\ i \end{bmatrix} \overbrace{\frac{-\zeta\overset{*}{\omega}}{1 - z\overset{*}{w}}}^{i}_{= 0 \Leftarrow i > q}$$

$$= \frac{\Gamma_{\nu}}{\underbrace{1 - z\overset{*}{w}}_{\nu}} \sum_{i=0}^{q} \begin{bmatrix} -\nu \\ i \end{bmatrix} \overset{i}{(-1)} \overbrace{\frac{\zeta\overset{*}{\omega}}{1 - z\overset{*}{w}}}^{i} = \sum_{i=0}^{q} \frac{\Gamma_{\nu+i}}{\underbrace{1 - z\overset{*}{w}}_{\nu+i}} \frac{1}{i!} \sum_{|I|=i}^{I\subset Q} i! \prod_{i}^{I} \zeta_{i}\,\bar{\omega}_{i} = \text{RHS}$$

$$\prod_i^I \zeta_{i}\,\bar{\omega}_i\,\omega_I = \overset{*}{\omega}_I\,\omega_I\,\zeta_I$$

$$\zeta_{i_0}\bar{\omega}_{i_0}\begin{bmatrix}\zeta_{i_1}\bar{\omega}_{i_1}\cdots\zeta_{i_k}\bar{\omega}_{i_k}\\ 8\end{bmatrix}\ \mathrm{ev}\ \omega_{i_0}\,\omega_{i_1}\cdots\omega_{i_k} = \zeta_{i_0}\bar{\omega}_{i_0}\,\omega_{i_0}\underbrace{\zeta_{i_1}\bar{\omega}_{i_1}\cdots\zeta_{i_k}\bar{\omega}_{i_k}\omega_{i_1}\cdots\omega_{i_k}} \underset{\mathrm{Ind}}{=} \zeta_{i_0}\bar{\omega}_{i_0}\,\omega_{i_0}\underbrace{\bar{\omega}_{i_k}\cdots\bar{\omega}_{i_1}\omega_{i_1}\cdots\omega_{i_k}\zeta_{i_1}\cdots\zeta_{i_k}}$$

$$= \zeta_{i_0}\bar{\omega}_{i_k}\cdots\bar{\omega}_{i_1}\begin{bmatrix}\bar{\omega}_{i_0}\omega_{i_0}\\ 8\end{bmatrix}\ \mathrm{ev}\ \omega_{i_1}\cdots\omega_{i_k}\,\zeta_{i_1}\cdots\zeta_{i_k} = \begin{bmatrix}\bar{\omega}_{i_k}\cdots\bar{\omega}_{i_1}\bar{\omega}_{i_0}\omega_{i_0}\omega_{i_1}\cdots\omega_{i_k}\\ 8\end{bmatrix}\ \mathrm{ev}\ \zeta_{i_0}\,\zeta_{i_1}\cdots\zeta_{i_k}$$

$$\int_{dw/\pi^p}^{{}^1\underset{\triangledown}{\mathbb{C}}_p}\ \int_{d\omega}^{{}^{|0}\mathbb{C}_{|q}} \frac{\overbrace{1 - w\overset{*}{w} - \omega\overset{*}{\omega}}^{\nu+q-p-1}}{\Gamma_{\nu+q-p}}\,\frac{\Gamma_\nu}{\underbrace{1 - z\overset{*}{w} - \zeta\overset{*}{\omega}}_{\nu}}\ {}^{w|\omega}\urcorner = {}^{z|\zeta}\urcorner$$

$$\int_{dw/\pi^p}^{{}^1\underset{\triangledown}{\mathbb{C}}_p}\ \int_{d\omega}^{{}^{|0}\mathbb{C}_{|q}} \frac{\overbrace{1 - w\overset{*}{w} - \omega\overset{*}{\omega}}^{\nu+q-p-1}}{\Gamma_{\nu+q-p}}\,\frac{\Gamma_\nu}{\underbrace{1 - z\overset{*}{w} - \zeta\overset{*}{\omega}}_{\nu}}\ {}^{w}\llcorner^{M}\ \omega_M = \int_{dw/\pi^p}^{{}^1\underset{\triangledown}{\mathbb{C}}_p}\ \int_{d\omega}^{{}^{|0}\mathbb{C}_{|q}} \frac{\overbrace{1 - w\overset{*}{w}}^{\nu+|J|-p-1}}{\Gamma_{\nu+|J|-p}}\,\overset{*}{\omega}_{Q\llcorner J}\,\omega_{Q\llcorner J}\,\frac{\Gamma_{\nu+|I|}}{\underbrace{1 - z\overset{*}{w}}_{\nu+|I|}}\prod_i^I \zeta_i\,\bar{\omega}_i\ {}^{w}\llcorner^{M}\ \omega_M$$

$$\underset{J=I}{\overset{J=M}{\equiv}} \int_{dw/\pi^p}^{{}^1\underset{\triangledown}{\mathbb{C}}_p} \frac{\overbrace{1 - w\overset{*}{w}}^{\nu+|I|-p-1}}{\Gamma_{\nu+|I|-p}}\,\frac{\Gamma_{\nu+|I|}}{\underbrace{1 - z\overset{*}{w}}_{\nu+|I|}}\ {}^{w}\llcorner^{I}\ \int_{d\omega}^{{}^{|0}\mathbb{C}_{|q}} \overset{*}{\omega}_{Q\llcorner I}\,\omega_{Q\llcorner I}\underbrace{\prod_i^I \zeta_i\bar{\omega}_i\omega_I}_{=\overset{*}{\omega}_I\omega_I\zeta_I}$$

$$= \int_{dw/\pi^p}^{{}^1\underset{\triangledown}{\mathbb{C}}_p} \frac{\overbrace{1 - w\overset{*}{w}}^{\nu+|I|-p-1}}{\Gamma_{\nu+|I|-p}}\,\frac{\Gamma_{\nu+|I|}}{\underbrace{1 - z\overset{*}{w}}_{\nu+|I|}}\ {}^{w}\llcorner^{I}\ \underbrace{\int_{d\omega}^{{}^{|0}\mathbb{C}_{|q}} \overset{*}{\omega}_{Q\llcorner I}\omega_{Q\llcorner I}\overset{*}{\omega}_I\omega_I}_{=1}\,\zeta_I = \int_{dw/\pi^p}^{{}^1\underset{\triangledown}{\mathbb{C}}_p} \frac{\overbrace{1 - w\overset{*}{w}}^{\nu+|I|-p-1}}{\Gamma_{\nu+|I|-p}}\,\frac{\Gamma_{\nu+|I|}}{\underbrace{1 - z\overset{*}{w}}_{\nu+|I|}}\ {}^{w}\llcorner^{I}\ \zeta_I = {}^{z}\llcorner^{I}\ \zeta_I$$