$$\ell \in \mathbb{N}$$

$$D \underset{\omega}{\triangleright}^{2} S_j^{\mathbb{C}} \underset{\omega}{\triangleright} \overset{\ell}{\mathbb{C}} \ni {}^{\zeta|z}\mathfrak{q}$$

$$\mathfrak{q} \,\overline{\wedge}\, \mathfrak{p} = \int_{dz}^{D} {}^{z}\Delta_z^{\nu-p}\; {}^{z}\mathfrak{q} \underset{S_j}{\overline{\wedge}} \underbrace{{}^{z}B_z^{-1} \ltimes {}^{z}\mathfrak{p}} = \int_{dz}^{D} \int_{du}^{S_j} {}^{u|z}\bar{\mathfrak{q}}\; {}^{u^z B_z^{-1}|z}\mathfrak{p}$$

$${}^{\zeta|z}\overbrace{g \ltimes \mathfrak{q}} = \underset{T}{{}^{z}} g^{-\nu}\; {}^{\zeta}{}_{K}^{z} {}^{g|z}{}^{g}\mathfrak{q}$$

$$d_1/r - \ell - 1 = (r-1)\, a/2 - \ell$$

$$\mathfrak{q} \underset{d_1/r\text{-}\ell}{\overline{\wedge}} \mathfrak{p} = \sum_{\mu_r \geqslant \ell} \frac{\mathfrak{q}_\mu \overline{\wedge} \mathfrak{p}_\mu}{\left(d_1/r\text{-}\ell\right)_\mu} = \frac{1}{\left(d_1/r\text{-}\ell\right)_{\ell\cdot\cdot\ell}} \sum_{\mu_r \geqslant \ell} \frac{\mathfrak{q}_\mu \overline{\wedge} \mathfrak{p}_\mu}{\left(d_1/r\right)_{\mu\text{-}\ell}}$$

$$D \underset{\omega}{\triangleright}^{2} \mathbb{G}_r Z \underset{\omega}{\triangleright} \mathcal{L} \xleftarrow[\text{intertwiner}]{} D \underset{\omega}{\triangleright} \overset{\lambda/q_\lambda}{\mathbb{C}} = D \underset{\omega}{\triangleright}^{2} \overset{-\ell+d_1/r}{\mathbb{C}} = \sum_{\mu_r \geqslant \ell} Z \,\dot{\triangleright}\, \overset{\mu}{\mathbb{C}}$$

$$
{}^{\zeta|z}\overbrace{\mathcal{I}\daleth} = {}^{zP_\zeta}\overbrace{\partial^{\ell}_{N_\zeta}\daleth_\zeta} \in \mathcal{L}_\zeta
$$

$$
{}^{e|z}\underset{\sim}{\mathcal{I}}\daleth = {}^{z}\overbrace{\partial^{\ell}_{N_e}\daleth}
$$

$$
{}^{z}\overbrace{g \ltimes \daleth} = {}^{z}\underline{g}^{\lambda/p}\ {}^{zg}\daleth
$$

$$
{}^{\zeta|z}\overbrace{g \ltimes \beth} = {}^{\zeta \rtimes {}^{z}\underline{g}|zg}\beth
$$

$$
\frac{\Gamma_{d_1/r}}{\Gamma_{d_1/r+\ell}}\ {}^{zP_\zeta}\overbrace{\partial_{N_\zeta}\underbrace{\underline{g}^{d_1/rp-\ell/p} g \ltimes \daleth}}_{\zeta} = \overbrace{N^{\ell}_{\zeta}\ {}_{\zeta T}G^{-d_1/r-\ell}_{zP_\zeta}} \underset{S_\zeta}{\bowtie} \overbrace{\underline{g}^{d_1/rp-\ell/p}\underbrace{g \ltimes \daleth}}_{\zeta} = \int_{ds}^{S_\zeta} {}^{s}\bar{N}^{\ell}_{\zeta}\ {}^{zP_\zeta}_{\zeta T}G^{-d_1/r-\ell}_{s}\ {}_{s}\underline{g}^{d_1/rp-\ell/p}\ {}^{sg}\daleth
$$

$$
= \int_{ds}^{S_\zeta} {}^{s}\bar{N}^{\ell}_{\zeta}\ {}^{z}\Delta^{-d_1/r-\ell}_{s}\ {}_{s}\underline{g}^{d_1/rp-\ell/p}\ {}^{sg}\daleth = {}^{z}\underline{g}^{d_1/rp+\ell/p} \int_{dt}^{S_\zeta} {}^{sg}\daleth\ {}_{s}\underline{g}^{2d_1/rp}\ {}^{s}\bar{N}^{\ell}_{\zeta}\ {}^{sg}\Delta^{-d_1/r-\ell}_{zg}
$$

$$
\omega = \zeta \rtimes {}^{z}\underline{g}
$$

$$
{}^{\zeta|z}\overbrace{g_{d_1/r+\ell} \ltimes \mathcal{I}\daleth} = {}^{z}\underline{g}^{d_1/rp+\ell/p}\ {}^{\omega|zg}\overbrace{\mathcal{I}\daleth} = {}^{z}\Delta^{-d_1/r-\ell}_{a}\ {}^{-z}\Delta^{d_1/2r+\ell/2}_{a}\ {}^{zgP_\omega}\overbrace{\partial^{\ell}_{N_\omega}\daleth_\omega}
$$

$$
\frac{\Gamma_{d_1/r}}{\Gamma_{d_1/r+\ell}}\ {}^{zgP_\omega}\overbrace{\partial^{\ell}_{N_\omega}\daleth_\omega} = N^{\ell}_{\omega}\ {}_{\omega T}G^{-d_1/r-\ell}_{zgP_\omega} \underset{S_\omega}{\bowtie} \daleth = \int_{dt}^{S_\omega} {}^{t}\bar{N}^{\ell}_{\omega}\ {}^{t}_{\omega T}\bar{G}^{-d_1/r-\ell}_{zgP_\omega}\ {}^{t}\daleth = \int_{dt}^{S_\omega} {}^{t}\bar{N}^{\ell}_{\omega}\ {}^{t}\bar{\Delta}^{-d_1/r-\ell}_{zg}\ {}^{t}\daleth
$$

$$
D_{\underset{\omega}{\triangle}}^{2}\ \overbrace{Z_{\triangle}\ {}^{\ell^r}\mathbb{C}}^{d_1/r+\ell} \leftarrow D_{\underset{\omega}{\triangle}}^{2}\ {}^{d_1/r-\ell}\mathbb{C}
$$

$$
{}^{z\alpha}\overbrace{\mathcal{I}\daleth} = {}^{z\alpha}\overbrace{Z^{j}|\daleth} = {}^{z\alpha}\daleth = {}^{z}\overbrace{\alpha \ltimes \daleth}
$$

$$
{}^{z_2/z_1}\tilde{\daleth} = z_1^{-\ell}\ {}^{z_1:z_2}\daleth
$$

$$
t = s\,\mathfrak{g}_a
$$

$$
{}^{z}\underline{\mathfrak{g}}_a = {}^{-z}B^{-1}_{a}\ {}^{a}B^{1/2}_{a}
$$

$$
\Longrightarrow {}^{z}\underline{\mathfrak{g}}^{\lambda/p}_{a} = {}^{-z}\Delta^{-\lambda}_{a}\ {}^{a}\Delta^{\lambda/2}_{a}
$$

$$ {}^{s}\underline{g}^{d_1/rp-\ell/p}\, {}^{z}\Delta_{s}^{-d_1/r-\ell} = {}^{s}\underline{g}^{d_1/rp-\ell/p}\, {}^{z}\underline{g}^{d_1/rp+\ell/p}\, {}^{zg}\Delta_{sg}^{-d_1/r-\ell}\, {}^{s}\underline{\overset{*}{g}}^{d_1/rp+\ell/p} $$

$$ \mu_r \geqslant \ell \Longrightarrow \left(d_1/r-\ell\right)_{\mu} = \left(d_1/r-\ell\right)_{\ell\cdot\cdot\ell} \left(d_1/r\right)_{\mu-\ell} $$

$$ \text{LHS} = \prod_{j}^{r} \prod_{i}^{\mu_j} \overbrace{d_1/r-\ell+i-ja/2} = \underbrace{\prod_{j}^{r} \prod_{i}^{\ell} \overbrace{d_1/r-\ell+i-ja/2}}_{=\left(d_1/r-\ell\right)_{\ell\cdot\cdot\ell}} \underbrace{\prod_{j}^{r} \prod_{\ell \leqslant i < \mu_j} \overbrace{d_1/r-\ell+i-ja/2}}_{=\left(d_1/r\right)_{\mu-\ell}} = \text{RHS} $$

$$ \overbrace{\xi-\lambda}^{q_\lambda} \urcorner \underset{\xi}{\bowtie} \ulcorner \rightsquigarrow \urcorner \underset{\lambda}{\bowtie} \ulcorner = \sum_{\mu_r \geqslant \ell} \left(d_1/r\right)_{\mu-\ell} \urcorner_{\mu} \bowtie \ulcorner_{\mu} $$

$$ \partial_{\xi}^{q_\lambda}\, {}^{z}\Delta_{w}^{-\xi} = \sum_{\mu_r \geqslant \ell} \left(d_1/r\right)_{\mu-\ell} {}^{z}\mathfrak{s}_{w}^{\mu} + \sum_{\mu_r < \ell} c_\mu\, {}^{z}\mathfrak{s}_{w}^{\mu} = \frac{q_\lambda !}{\left(d_1/r\right)_{\ell\cdot\cdot\ell}} \overbrace{\log {}^{z}\Delta_{w}^{-1}}^{q_\lambda} {}^{z}\Delta_{w}^{-\lambda} $$

$$ \partial_{\xi}^{q_\lambda} \underline{\xi}_{\mu}\ {}_{\xi \,=\, \lambda}^{\equiv} \begin{cases} \left(d_1/r\right)_{\ell\cdot\cdot\ell} \left(d_1/r\right)_{\mu-\ell} & \mu_r \geqslant \ell \\ c_\mu & \mu_r < \ell \end{cases} $$

$$ \underbrace{g \ltimes \urcorner}_{\lambda} \underset{\lambda}{\bowtie} \underbrace{g \ltimes \ulcorner}_{\lambda} \leftsquigarrow \overbrace{\xi-\lambda}^{q_\lambda} \underbrace{g \ltimes \urcorner}_{\xi} \underset{\xi}{\bowtie} \underbrace{g \ltimes \ulcorner}_{\xi} = \overbrace{\xi-\lambda}^{q_\lambda} \urcorner \underset{\xi}{\bowtie} \ulcorner \rightsquigarrow \urcorner \underset{\lambda}{\bowtie} \ulcorner $$