$$\widetilde{\pi}_g \rceil = \widetilde{\delta}_g^{\,1/2}\, \overbrace{\widetilde{\varrho}_g \rceil}$$

$$\underline{\widetilde{\pi}}_\gamma \rceil = \frac{1}{2} \underline{\widetilde{\delta}}_\gamma \rceil + \underline{\widetilde{\varrho}}_\gamma \rceil$$

$$^{u}\overbrace{\widetilde{\varrho}_g \rceil} = {}^{\widetilde{g}\,(u)} \rceil$$

$$\underline{\widetilde{\varrho}}_\gamma \rceil = \widetilde{\gamma}\,(u)\ {}^{u}\underline{\rceil}$$

$$\underline{\widetilde{\pi}}_\gamma \rceil = \frac{1}{2} \underline{\widetilde{\delta}}_\gamma \rceil + \underline{\widetilde{\varrho}}_\gamma \rceil$$

$$\widetilde{\gamma}_w\,(u) = w_1 - w_1^* + w_{\ 1/2} = 2w \overset{*}{u} u - \underbrace{w \bowtie u + u \bowtie w} u$$

$$^{u}\overbrace{\underline{\widetilde{\varrho}}_w \rceil} = \widetilde{\gamma}_w\,(u)\ {}^{u}\underline{\rceil} = 2\,\partial_{w\overset{*}{u}u} - \underbrace{w \bowtie u + u \bowtie w}\, \partial_u$$

$$\frac{1}{2}\, {}^{u}\underline{\widetilde{\delta}}_w = C \underbrace{w \bowtie u + u \bowtie w}$$

$$^{u}\underline{\widetilde{\delta}}_w = (1-p)\, \underbrace{w \bowtie u + u \bowtie w}$$

$$p - 1 = 1 + a\,(r-1) + b = \frac{d}{r} + \frac{a}{2}\,(r-1)$$

$$\underline{\widetilde{\pi}}_w \rceil = \frac{1}{2} \underline{\widetilde{\delta}}_w \rceil + \underline{\widetilde{\varrho}}_w \rceil$$

$$\underline{\widetilde{\pi}}_w = 2\,\partial_{w\overset{*}{u}u} + \underbrace{w \bowtie u + u \bowtie w} \overbrace{C - \partial_u}$$

$$2C\phi \bowtie \overbrace{\underbrace{w \bowtie u}\psi} + 2\phi \bowtie \overbrace{\partial_{w\overset{*}{u}u}\psi} = \overbrace{\partial_u \phi} \bowtie \overbrace{\underbrace{w \bowtie u}\psi} + \phi \bowtie \overbrace{\underbrace{w \bowtie u}\partial_u \psi}$$

$$0 = \overbrace{\underline{\widetilde{\pi}}_w \phi} \bowtie \psi + \phi \bowtie \overbrace{\underline{\widetilde{\pi}}_w \psi} = \overbrace{2\partial_{w\overset{*}{u}u}\phi + \underbrace{w \bowtie u + u \bowtie w}\underbrace{C\phi - \partial_u \phi}} \bowtie \psi + \phi \bowtie \overbrace{2\partial_{w\overset{*}{u}u}\psi + \underbrace{w \bowtie u + u \bowtie w}\underbrace{C\psi - \partial_u \psi}}$$

$$\overbrace{\underbrace{u \bowtie w}\underbrace{C\phi - \partial_u \phi}} \bowtie \psi + \phi \bowtie \overbrace{2\partial_{w\overset{*}{u}u}\psi + \underbrace{w \bowtie u}\underbrace{C\psi - \partial_u \psi}} = 0$$

$$\bigwedge_{p:q}^{\mathcal{P}^m\,(Z)} \int_{du}^{S_1} {}^{u}\overline{p}\ {}^{u}q = c_m\ {}^{z}p \underset{Z}{\bowtie} {}^{z}q$$

$$\mathcal{E}^m_a \mathbin{\blacktriangledown} \overparen{\underparen{w \mathbin{\blacktriangle} u}\,\mathcal{E}^{m+}_b} = \int_{du}^{S_1} {}^a\mathcal{E}^m_u \,\underparen{w \mathbin{\blacktriangle} u}\, {}^u\mathcal{E}^{m+}_b = c_{m+}\, {}^a\mathcal{E}^m_b \,\underparen{w \mathbin{\blacktriangle} b}$$

$${}^z\mathcal{E}^m_a \,\underparen{z \mathbin{\blacktriangle} w} = \underbrace{{}^z p}_{m+1} + \underbrace{{}^z q}_{m:1} : \quad {}^u q = 0$$

$$\text{LHS} = \int_{du}^{S_1} {}^u\bar{p}\; {}^u\mathcal{E}^{m+}_b = c_{m+}\, {}^z p \mathbin{\underset{Z}{\blacktriangledown}} {}^z\mathcal{E}^{m+}_b = c_{m+}\, {}^b\bar{p} = \text{RHS}$$

$$\mathcal{E}^m_a \mathbin{\blacktriangledown} \overparen{\partial_{w\overset{*}{u}u}\,\mathcal{E}^{m+}_b} = \int_{du}^{S_1} {}^a\mathcal{E}^m_u \,\overparen{\partial_{w\overset{*}{u}u}\, {}^u\mathcal{E}^{m+}_b} = c_{m+} \left(\frac{p}{2} + m\right) {}^a\mathcal{E}^m_b \,\underparen{w \mathbin{\blacktriangle} b}$$

$$\underparen{w\overset{*}{u}u} \mathbin{\blacktriangle} b = \overparen{e_i \mathbin{\blacktriangle} u}\,\overparen{\underparen{w\overset{*}{e}_i u} \mathbin{\blacktriangle} u}$$

$$\gamma x = w\overset{*}{e}_i x \Longrightarrow \underparen{w\overset{*}{e}_i x}\, {}^x\mathcal{E}^{m+}_{-b} = \underparen{\gamma x}\, {}^x\mathcal{E}^{m+}_{-b} = \partial_\varepsilon\, {}^{g_\varepsilon x}\mathcal{E}^{m+}_b = \partial_\varepsilon\, {}^x\mathcal{E}^{m+}_{\overset{*}{g}_t b} = \partial_\varepsilon\, {}^x\mathcal{E}^{m+}_{b_\varepsilon}$$

$$b_\varepsilon = \overset{*}{g}_\varepsilon b \in Z_1 \Longrightarrow \partial_\varepsilon b_\varepsilon = \overset{*}{\gamma} b = e_i \overset{*}{w} b$$

$$\text{LHS} = \int_{du}^{S_1} {}^a\mathcal{E}^m_u \,\overparen{\underparen{w\overset{*}{u}u} \mathbin{\blacktriangle} b}\, {}^u\mathcal{E}^m_b = \int_{du}^{S_1} {}^a\mathcal{E}^m_u \,\overparen{e_i \mathbin{\blacktriangle} u}\,\overparen{\underparen{w\overset{*}{e}_i u} \mathbin{\blacktriangle} b}\, {}^u\mathcal{E}^m_b$$

$$= \int_{du}^{S_1} {}^a\mathcal{E}^m_u \,\overparen{e_i \mathbin{\blacktriangle} u}\,\overparen{\underparen{w\overset{*}{e}_i u}\, {}^u\mathcal{E}^{m+}_{-b}} = \int_{du}^{S_1} {}^a\mathcal{E}^m_u \,\overparen{e_i \mathbin{\blacktriangle} u}\,\underparen{\partial_\varepsilon\, {}^u\mathcal{E}^{m+}_{b_\varepsilon}} = \partial_\varepsilon \int_{du}^{S_1} {}^a\mathcal{E}^m_u \,\overparen{e_i \mathbin{\blacktriangle} u}\, {}^u\mathcal{E}^{m+}_{b_\varepsilon}$$

$$= c_{m+}\, \partial_\varepsilon \underbrace{\overparen{e_i \mathbin{\blacktriangle} b_\varepsilon}\, {}^a\mathcal{E}^m_{b_\varepsilon}} = c_{m+} \underbrace{\overparen{e_i \mathbin{\blacktriangle} \underparen{e_i\overset{*}{w}b}}\, {}^a\mathcal{E}^m_b + \overparen{e_i \mathbin{\blacktriangle} b}\,\overparen{a \mathbin{\blacktriangle} \underparen{e_i\overset{*}{w}b}}\, {}^a\mathcal{E}^{m-}_b} = \text{RHS}$$

$$e_i \mathbin{\blacktriangle} \underparen{e_i\overset{*}{w}b} = \underparen{e_i\overset{*}{e}_i w} \mathbin{\blacktriangle} b = \frac{p}{2} w \mathbin{\blacktriangle} b$$

$$\overparen{e_i \mathbin{\blacktriangle} b}\,\overparen{a \mathbin{\blacktriangle} \underparen{e_i\overset{*}{w}b}} = \overparen{e_i \mathbin{\blacktriangle} b}\,\overparen{\underparen{a\overset{*}{b}w} \mathbin{\blacktriangle} e_i} = \underparen{a\overset{*}{b}w} \mathbin{\blacktriangle} b = a \mathbin{\blacktriangle} \underparen{b\overset{*}{w}b} = \overparen{a \mathbin{\blacktriangle} b}\,\overparen{w \mathbin{\blacktriangle} b}$$

$$C = \frac{1-p}{2}$$

$$2C\,\mathcal{E}_a^m \bowtie \overbrace{\underbrace{w \ast u}\mathcal{E}_b^{m+}} + 2\,\mathcal{E}_a^m \bowtie \overbrace{\partial_{w \overset{*}{u} u}\mathcal{E}_b^{m+}} = \overbrace{\partial_u \mathcal{E}_a^m} \bowtie \overbrace{\underbrace{w \ast u}\mathcal{E}_b^{m+}} + \mathcal{E}_a^m \bowtie \overbrace{\underbrace{w \ast u}\partial_u \mathcal{E}_b^{m+}}$$

$$2C\,\mathcal{E}_a^m \bowtie \overbrace{\underbrace{w \ast u}\mathcal{E}_b^{m+}} + 2\,\mathcal{E}_a^m \bowtie \overbrace{\partial_{w \overset{*}{u} u}\mathcal{E}_b^{m+}} = m\,\mathcal{E}_a^m \bowtie \overbrace{\underbrace{w \ast u}\mathcal{E}_b^{m+}} + (m+1)\;\mathcal{E}_a^m \bowtie \overbrace{\underbrace{w \ast u}\mathcal{E}_b^{m+}}$$

$$(2m+1-2C)\;\mathcal{E}_a^m \bowtie \overbrace{\underbrace{w \ast u}\mathcal{E}_b^{m+}} = 2\,\mathcal{E}_a^m \bowtie \overbrace{\partial_{w \overset{*}{u} u}\mathcal{E}_b^{m+}} \Longrightarrow = 2m+1-2C = 2m+p$$