$$
{}^{p|q}\mathbb{C}_{r|s}\underset{\omega}{\triangle}\mathbb{C} = \left[\begin{array}{cccc|cccc} {}^{1|}\Gamma_{1|} & \cdots & {}^{r|}\Gamma_{1|} & & {}^{|1}\Gamma_{1|} & \cdots & {}^{|s}\Gamma_{1|} \\ \vdots & \ddots & \vdots & & \vdots & \ddots & \vdots \\ {}^{1|}\Gamma_{p|} & \cdots & {}^{r|}\Gamma_{p|} & & {}^{|1}\Gamma_{p|} & \cdots & {}^{|s}\Gamma_{p|} \\ \hline {}^{1|}\Gamma_{|1} & \cdots & {}^{r|}\Gamma_{|1} & & {}^{|1}\Gamma_{|1} & \cdots & {}^{|s}\Gamma_{|1} \\ \vdots & \ddots & \vdots & & \vdots & \ddots & \vdots \\ {}^{1|}\Gamma_{|q} & \cdots & {}^{r|}\Gamma_{|q} & & {}^{|1}\Gamma_{|q} & \cdots & {}^{|s}\Gamma_{|q} \end{array} = \begin{array}{cc} {}^{\cdot}\Gamma_{\cdot} & {}'\Gamma_{\cdot} \\ {}^{\cdot}\Gamma_{,} & {}'\Gamma_{,} \end{array} \quad \begin{array}{c|c} \text{ev} & \text{odd} \\ \hline \text{odd} & \text{ev} \end{array}\right]
$$

$$
{}^{p|q}\mathbb{C}_{r|s}\underset{\omega}{\triangle}\mathbb{C} \xrightarrow{\mu} \underbrace{{}^{p|q}\mathbb{C}_{k|\ell}\underset{\omega}{\triangle}\mathbb{C}} \bowtie \underbrace{{}^{k|\ell}\mathbb{C}_{r|s}\underset{\omega}{\triangle}\mathbb{C}}
$$

$$
\mu\ {}^{i|}\Gamma_{k|} = \sum_{j|} {}^{i|}\Gamma_{j|} \bowtie {}^{j|}\Gamma_{|k|} + \sum_{|j} {}^{|i|}\Gamma_{|j} \bowtie {}^{|j}\Gamma_{k|}
$$

$$
\mu\ {}^{i|}\Gamma_{|k} = \sum_{j|} {}^{i|}\Gamma_{j|} \bowtie {}^{j|}\Gamma_{|k|} + \sum_{|j} {}^{|i|}\Gamma_{|j} \bowtie {}^{|j}\Gamma_{|k}
$$

$$
\mu\ {}^{|i}\Gamma_{k|} = \sum_{j|} {}^{|i}\Gamma_{j|} \bowtie {}^{j|}\Gamma_{|k|} + \sum_{|j} {}^{|i|}\Gamma_{|j} \bowtie {}^{|j}\Gamma_{k|}
$$

$$
\mu\ {}^{|i}\Gamma_{|k} = \sum_{j|} {}^{|i}\Gamma_{j|} \bowtie {}^{j|}\Gamma_{|k|} + \sum_{|j} {}^{|i|}\Gamma_{|j} \bowtie {}^{|j}\Gamma_{|k}
$$

$$
{}_{1|1}\mathbb{C}^{1|1}\underset{\omega}{\triangle}\mathbb{C} = \left[\begin{array}{c} \daleth : \gimel : \beth : \digamma \\ \begin{array}{c|c} \daleth & \gimel \\ \hline \beth & \digamma \end{array} = \begin{array}{c|c} \text{ev} & \text{odd} \\ \hline \text{odd} & \text{ev} \end{array} \end{array}\right]\mathbb{C} = \left[\begin{array}{c} a{:}\beta{:}\gamma{:}d \\ \begin{array}{c|c} a & \beta \\ \hline \gamma & d \end{array} = \begin{array}{c|c} \text{ev} & \text{odd} \\ \hline \text{odd} & \text{ev} \end{array} \ \text{standard relations} \end{array}\right]\mathbb{C}
$$

$$
{}_{p|q}\mathbb{C}^{p|q}\underset{\omega}{\triangle}\mathbb{C} = \left[\begin{array}{c} {}_i\daleth^j : {}_i\gimel^n : {}_m\beth^j : {}_m\digamma^n : i \in p \ni j : m \in q \ni n \\ \begin{array}{c|c} .\daleth^{\cdot} & .\gimel^{\cdot} \\ \hline .\beth^{\cdot} & .\digamma^{\cdot} \end{array} = \begin{array}{c|c} \text{ev} & \text{odd} \\ \hline \text{odd} & \text{ev} \end{array} \end{array}\right]\mathbb{C} = \left[\begin{array}{c} {}_ia^j : {}_i\beta^n : {}_m\gamma^j : {}_md^n : i \in p \ni j : m \in q \ni n \\ \begin{array}{c|c} .a^{\cdot} & .\beta^{\cdot} \\ \hline .\gamma^{\cdot} & .d^{\cdot} \end{array} = \begin{array}{c|c} \text{ev} & \text{odd} \\ \hline \text{odd} & \text{ev} \end{array} \ \text{standard relations} \end{array}\right]\mathbb{C}
$$

$$
{}_{r:s|q}\mathbb{C}^{r:s|q}\underset{\omega}{\triangle}\mathbb{C} = \left[\begin{array}{c} {}_i\daleth^j\ {}_i\gimel^k\ {}_i\daleth^n\ {}_\ell\beth^j\ {}_\ell\digamma^k\ {}_\ell\beth^m\ {}_m\daleth^j\ {}_m\gimel^k\ {}_m\daleth^n \\ \begin{array}{cc|c} .\daleth^{\cdot} & .\gimel^{\cdot} & .\daleth^{\cdot} \\ .\beth^{\cdot} & .\digamma^{\cdot} & .\beth^{\cdot} \\ \hline .\daleth^{\cdot} & .\gimel^{\cdot} & .\daleth^{\cdot} \end{array} = \begin{array}{c|c} \text{ev} & \text{odd} \\ \hline \text{odd} & \text{ev} \end{array} \end{array}\right]
$$

$$
{}^{p|q}\mathbb{C}_{p|q}\underset{\omega}{\triangle}\mathbb{C} = \mathbb{C}\left\{\begin{array}{c} \begin{array}{c|c} {}^{\cdot}a_{.} & {}^{\cdot}\beta_{.} \\ \hline {}^{\cdot}\gamma_{.} & {}^{\cdot}d_{.} \end{array} \\ \begin{array}{c|c} \text{ev} & \text{odd} \\ \hline \text{odd} & \text{ev} \end{array} \end{array}\right\}
$$

$$
{}^{p|q}\mathbb{C}_{p|q}\triangle_{\omega}\mathbb{C}\otimes{}^{p|q}\mathbb{C}_{p|q}\triangle_{\omega}\mathbb{C}\xleftarrow[\hom]{\Delta}{}^{p|q}\mathbb{C}_{p|q}\triangle_{\omega}\mathbb{C}
$$

$$
\Delta\begin{array}{c|c} a & \beta \\ \hline \gamma & d \end{array} = \begin{array}{c|c} a & \beta \\ \hline \gamma & d \end{array}\otimes\begin{array}{c|c} a & \beta \\ \hline \gamma & d \end{array} = \begin{array}{c|c} a\otimes a+\beta\otimes\gamma & a\otimes\beta+\beta\otimes d \\ \hline \gamma\otimes a+d\otimes\gamma & \gamma\otimes\beta+d\otimes d \end{array}
$$

$$
\Delta\underbrace{\beta\gamma+\gamma\beta}=\Delta\beta\Delta\gamma+\Delta\gamma\Delta\beta=\underbrace{a\otimes\beta+\beta\otimes d}\underbrace{\gamma\otimes a+d\otimes\gamma}+\underbrace{\gamma\otimes a+d\otimes\gamma}\underbrace{a\otimes\beta+\beta\otimes d}
$$

$$
=-a\gamma\otimes\beta a+ad\otimes\beta\gamma+\beta\gamma\otimes da+\beta d\otimes d\gamma+\gamma a\otimes a\beta+\gamma\beta\otimes ad+da\otimes\gamma\beta-d\beta\otimes\gamma\cdots
$$

$$
=\gamma a\otimes a\beta-a\gamma\otimes\beta a+ad\otimes\beta\gamma+da\otimes\gamma\beta+\beta\gamma\otimes da+\gamma\beta\otimes ad+\beta d\otimes d\gamma-d\beta\otimes\gamma\cdots
$$

$$
=\underbrace{\gamma a-a\gamma}\otimes a\beta+a\gamma\otimes\underbrace{a\beta-\beta a}+\underbrace{ad-da}\otimes\beta\gamma+da\otimes\underbrace{\beta\gamma+\gamma\beta}
$$

$$
+\underbrace{\beta\gamma+\gamma\beta}\otimes da+\gamma\beta\otimes\underbrace{ad-da}+\underbrace{\beta d-d\beta}\otimes d\gamma+d\beta\otimes\underbrace{d\gamma-\gamma d}\in\mathcal{J}\otimes\mathcal{F}+\mathcal{F}\otimes\mathcal{J}
$$