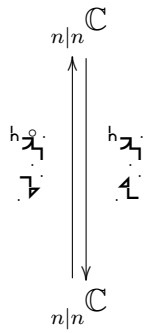
$$\mathbb{C}^{n|n} \times_{n|n} \mathbb{C} \ni \psi = \begin{bmatrix} \psi_1 \\ \vdots \\ \psi_n \end{bmatrix}$$



$$\mathbb{C}^{n|n} \xrightarrow[\psi^\dagger]{\psi} {}_{n|n}\mathbb{C}^n$$

$$\mathbb{C}^{n|n} \xrightarrow[\psi_\flat = \psi^\dagger \eta \psi]{\psi^\flat = \psi^\dagger \eta} {}_{p:q}\mathbb{K}^{p:q}$$

$$\psi^\flat = \psi^\dagger \eta$$

$$\psi^{\flat\mu\nu} = \psi^\dagger_i \eta^{ij} \psi^\nu_j$$

$$\psi_\flat = \psi^* \eta \psi$$

$$\psi = \begin{cases} \psi \underbrace{\psi^\dagger \psi} \\ \psi \underbrace{\psi^* \psi} \end{cases} \quad : \quad {}_\mu\delta^\nu = \begin{cases} \psi^k_\mu \psi^\nu_k \\ {}_\mu\psi^k \, {}_k\psi^\nu \end{cases}$$

$$\psi = \begin{cases} \psi \underbrace{\psi^\dagger \psi} \\ \psi \underbrace{\psi^* \psi} \end{cases} \quad : \quad {}_i\delta^j = \begin{cases} \psi^\lambda_i \psi^j_\lambda \\ {}_i\psi^\lambda \, {}_\lambda\psi^j \end{cases}$$

$$\psi \barwedge \psi = \psi^* \eta \psi = {}_i\psi^* \eta^{ij} \, {}_j\psi$$

$$\psi \underset{\flat}{\barwedge} \psi = \begin{cases} \underbrace{\psi \psi^\dagger} \barwedge \underbrace{\psi \psi^\dagger} & = \overbrace{\psi \psi^\dagger}^{*} \eta \underbrace{\psi \psi^\dagger} = \underbrace{\psi \psi^\dagger} \eta \underbrace{\psi \psi^\dagger} = \psi \underbrace{\psi^\dagger \psi^* \eta} \psi^\dagger \psi = \psi \psi^\dagger \eta \psi^\dagger \psi = \psi \psi^\dagger \psi^{\flat\mu\nu} \psi \\ \underbrace{\psi \psi^*} \barwedge \underbrace{\psi \psi^*} & = \overbrace{\psi \psi^*}^{*} \eta \underbrace{\psi \psi^*} = \underbrace{\psi \psi^*} \eta \underbrace{\psi \psi^*} = \psi \underbrace{\psi^* \psi \eta} \psi^* \psi = \psi \psi^* \eta \psi^* \psi = \psi \psi^* \psi_\flat \psi \end{cases}$$

$$\mathrm{Ber}(MN) = \mathrm{Ber}(M)\mathrm{Ber}(N) \qquad \mathrm{sdet}(MN) = \mathrm{sdet}(M)\mathrm{sdet}(N)$$

$$\mathrm{Ber}(M) = \det(A - BD^{-1}C)\det(D)^{-1} \qquad \mathrm{sdet}(M) = \det(A)\det(D - CA^{-1}B)^{-1}$$

$$\mathbb{C}^{\cdot\cdot\cdot\cdot} = \begin{cases} \mathbb{C}^{\cdot\cdot\cdot\cdot}\mathbb{C}^{\cdot\cdot\cdot\cdot} & \\ \mathbb{C}^{\cdot\cdot\cdot\cdot}\mathbb{C}^{\cdot\cdot\cdot\cdot} & \end{cases} \quad : \quad \mathbb{C}^{j} = \begin{cases} \mathbb{C}^{\cdot\cdot\cdot\cdot}\mathbb{C}^{j} \\ \mathbb{C}^{\cdot\cdot\cdot\cdot}\mathbb{C}^{j} \end{cases}$$

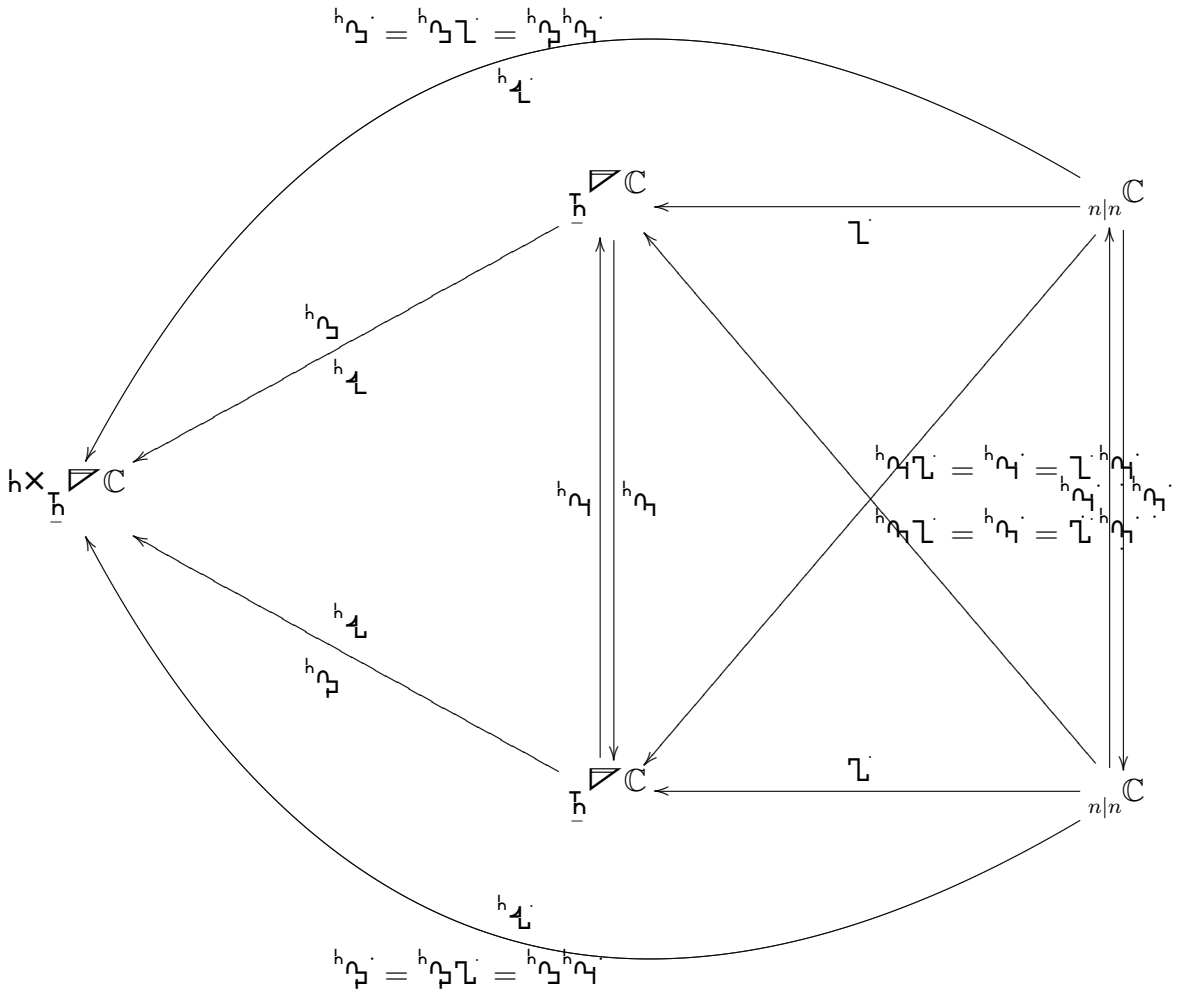
$$\begin{cases} {}^{h}\ddot{\mathcal{A}}_{\cdot}\mathcal{I} &= \underline{\mathcal{U}}_{h}{}^{h}\underbrace{\ddot{\mathcal{A}}_{\cdot}\mathcal{I}} \\ \mathcal{L}_{\cdot}\mathcal{I} &= \underline{\mathcal{U}}_{h}{}^{h}\underbrace{\mathcal{C}_{\cdot}\mathcal{I}} \end{cases} \begin{cases} {}^{h}\ddot{\mathcal{A}}^{j} &= \underline{\mathcal{U}}_{h}{}^{h}\ddot{\mathcal{A}}^{j} \\ \mathcal{L}^{j} &= \underline{\mathcal{U}}_{h}{}^{h}\mathcal{C}^{j} \end{cases}$$

$$\begin{cases} {}^{h}\mathring{\mathcal{A}}_{\cdot}\mathcal{M} &= {}^{h}\mathcal{A}\underbrace{{}^{h}\underline{\mathcal{V}}_{\cdot}\mathcal{M}} \\ \mathcal{F}_{\cdot}\mathcal{M} &= \mathcal{F}_{h}\underbrace{{}^{h}\underline{\mathcal{V}}_{\cdot}\mathcal{M}} \end{cases} \begin{cases} {}^{h}\mathring{\mathcal{A}}^{\nu} &= {}^{h}\mathcal{A}{}^{h}\underline{\mathcal{V}}^{\nu} \\ \mathcal{F}^{\nu} &= \mathcal{F}_{h}{}^{h}\underline{\mathcal{V}}^{\nu} \end{cases}$$

$${}^{h}\underline{\mathcal{V}}_{\cdot}\mathcal{M} = \begin{cases} {}^{h}\ddot{\mathcal{A}}\underbrace{{}^{h}\mathring{\mathcal{A}}_{\cdot}\mathcal{M}} \\ {}^{h}\mathcal{C}\underbrace{\mathcal{F}_{\cdot}\mathcal{M}} \end{cases} \quad : \quad {}^{h}\underline{\mathcal{V}}^{\nu} = \begin{cases} {}^{h}\ddot{\mathcal{A}}{}^{h}\mathring{\mathcal{A}}^{\nu} \\ {}^{h}\mathcal{C}\mathcal{F}^{\nu} \end{cases}$$

$$\begin{cases} {}^{h}\ddot{\mathcal{A}}_{\cdot}\mathcal{I} &= {}^{h}\ddot{\mathcal{A}}\underbrace{\mathcal{L}_{\cdot}\mathcal{I}} = {}^{h}\underline{\mathcal{V}}\underbrace{{}^{h}\ddot{\mathcal{A}}_{\cdot}\mathcal{I}} \\ {}^{h}\mathcal{C}_{\cdot}\mathcal{I} &= {}^{h}\mathcal{C}\underbrace{\mathcal{L}_{\cdot}\mathcal{I}} = {}^{h}\underline{\mathcal{V}}\underbrace{\mathcal{L}_{\cdot}\mathcal{I}} \end{cases}$$

$$\begin{cases} {}^{h}\ddot{\mathcal{A}}^{j} &= {}^{h}\ddot{\mathcal{A}}\mathcal{L}^{j} = {}^{h}\underline{\mathcal{V}}{}^{h}\ddot{\mathcal{A}}^{j} \\ {}^{h}\mathcal{C}^{j} &= {}^{h}\mathcal{C}\mathcal{L}^{j} = {}^{h}\underline{\mathcal{V}}\mathcal{L}^{j} \end{cases}$$


$\mathbb{C}$
$n|n$
$\mathbb{C}$
$\mathbb{C}$
$n|n$
$\mathbb{C}$