$$\mathbb{K}^m \longleftarrow \; \ltimes \; \mathbb{K}^m$$

$$_M(\;) = (_M\;)$$

$$\begin{bmatrix} {}_{j_1} \\ + \\ {}_{j_m} \end{bmatrix} \underbrace{\mathbb{K}^m} = \begin{bmatrix} {}_{j_1} \\ + \\ {}_{j_m} \end{bmatrix}$$

$$\underbrace{\;'\mathbb{L}} = \underbrace{\;'}\mathbb{L}$$

$$\underbrace{\mathbb{K}^m}\left('\;''\right) = \underbrace{\mathbb{K}^m}\;'\;\underbrace{\mathbb{K}^m}\;''$$

$$= \partial_t^0 (\exp t \;)$$

$$_M(\;) = \sum_i^M \begin{bmatrix} {}_i \\ {}_{M-i} \end{bmatrix}$$

$$\begin{bmatrix} {}_1 \\ + \\ {}_m \end{bmatrix} \overbrace{\underbrace{\mathbb{L}^m}}^{\text{sym}} = \mathbb{L}\left(\begin{bmatrix} {}_1 \\ + \\ v \end{bmatrix}\right)$$

$$\underbrace{\mathbb{L}^{p+q}}\;'\;'' = \underbrace{\mathbb{L}^p}\;'\;\underbrace{\mathbb{L}^q}\;''$$

$$\mathbb{K}^m \longleftarrow \; \ltimes \; \mathbb{K}^m$$

$$_M(\;) = (_M\;)$$

$$\begin{bmatrix} {}_{j_1} \\ + \\ {}_{j_m} \end{bmatrix} \underbrace{\mathbb{K}^m} = \begin{bmatrix} {}_{j_1} \\ + \\ {}_{j_m} \end{bmatrix}$$

$$\underbrace{\;'\mathbb{L}} = \underbrace{\;'}\mathbb{L}$$

$$\underbrace{\mathbb{K}^m}\left('\;''\right) = \underbrace{\mathbb{K}^m}\;'\;\underbrace{\mathbb{K}^m}\;''$$

$$= \partial_t^0 (\exp t \;)$$

$$_M(\;) = \sum_i^M \bigvee_{M-i}^{i} \begin{bmatrix} {}_i \\ {}_{M-i} \end{bmatrix}$$

$$\begin{bmatrix} {}_1\mathsf{L} \\ + \\ {}_m\mathsf{L} \end{bmatrix} \overbrace{\underbrace{\mathsf{L} \triangle \mathbb{L}^{m}}} \mathbb{I} = \mathbb{L} \left(\begin{bmatrix} {}_1\mathsf{L} & \mathsf{L} \\ + & \\ {}_{\mathsf{L}}\mathsf{L} v & \end{bmatrix} \mathbb{I} \right)$$

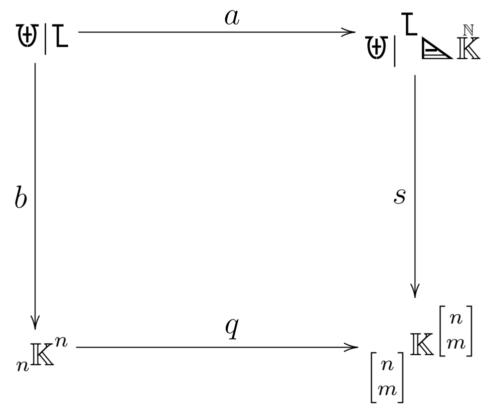
(the overbrace is labelled "symm")

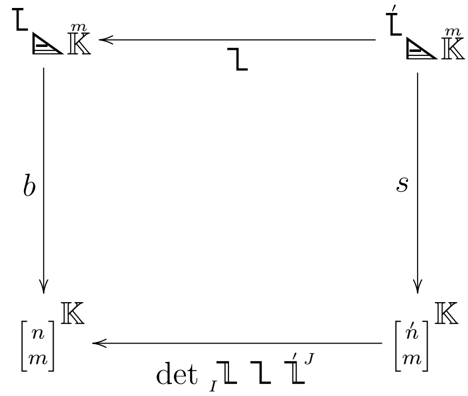
$$\underbrace{\mathsf{L} \triangle \mathbb{L}^{p+q}} \mathbb{I}' \mathbf{x} \mathbb{I}'' = \underbrace{\mathsf{L} \triangle \mathbb{L}^{p}} \mathbb{I}' \mathbf{x} \underbrace{\mathsf{L} \triangle \mathbb{L}^{q}} \mathbb{I}''$$

$$\begin{array}{ccc} \mathsf{U}|\mathsf{L} & \xrightarrow{\;a\;} & \mathsf{U}|\,\mathsf{L} \triangle \mathbb{K}^{\mathbb{N}} \\ \downarrow b & & \downarrow s \\ {}_n\mathbb{K}^n & \xrightarrow{\;q\;} & \begin{bmatrix} n+m+1 \\ m \end{bmatrix} \mathbb{K}^{\begin{bmatrix} n+m+1 \\ m \end{bmatrix}} \end{array}$$

$$\begin{array}{ccc} \mathsf{L} \triangle \mathbb{K}^{m} & \xleftarrow[\;\mathsf{L}\;]{} & \mathsf{L}' \triangle \mathbb{K}^{m} \\ \downarrow b & & \downarrow s \\ \begin{bmatrix} n+m+1 \\ m \end{bmatrix}^{\mathbb{K}} & \xleftarrow[\;\mathrm{per}\ {}_I\mathbb{L}\ \mathsf{L}\ \mathbb{L}'^{J}\;]{} & \begin{bmatrix} n' \\ m \end{bmatrix}^{\mathbb{K}} \end{array}$$

$$\begin{bmatrix} n+m+1 \\ m \end{bmatrix}^{I} \left(\sum_{|J|=m} \underbrace{\mathrm{per}\ {}_I\mathbb{L}\ \mathsf{L}\ \mathbb{L}'^{J}}_{J} \mathsf{I}' \right) \longleftarrow \begin{bmatrix} n' \\ m \end{bmatrix}^{J} \left({}_J \mathsf{I}' \right)$$





$$^{I}_{\begin{bmatrix} n \\ m \end{bmatrix}}\left(\sum_{|J|=m} \underbrace{\det {}_I \mathbb{1}\; \text{ł}\; \mathbb{1}'^{J}}\, {}_J \text{ł}'\right) \longleftarrow\!\shortmid \;\; ^{J}_{\begin{bmatrix} n' \\ m \end{bmatrix}}\left({}_J \text{ł}'\right)$$